



Levin-Richmond Terminal Corporation

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August 31, 2018

Ms. Karen Jurist
United States Environmental Protection Agency Region 9
75 Hawthorne Street
San Francisco, California 94105
Via email: jurist.karen@epa.gov

RE: 2017-2018 Annual Report, United Heckathorn Superfund Site, Upland Capping System
Richmond, California

Dear Ms. Jurist:

Enclosed please find the 2017-2018 Annual Report for the Upland Capping System at the United Heckathorn Superfund Site.

Please feel free to contact me if you have any questions or concerns with the attached report.

Sincerely,

James Holland
Vice President of Facilities, Equipment, and Environmental
Levin Richmond Terminal Corporation
(510) 307-4076

Enclosure: 2017-2018 Annual Report for United Heckathorn Superfund Site Upland Capping System



2017-2018 Annual Report

**United Heckathorn Superfund Site
Upland Capping System
Richmond, California**

August 29, 2018
Rev. 0

prepared for:

Levin Richmond Terminal Corporation
402 Wright Avenue
Richmond, California 94804

prepared by:

CDIM Engineering, Inc.
45 Polk Street, 3rd Floor
San Francisco, California 94102



2017-2018 Annual Report

**United Heckathorn Superfund Site
Upland Capping System
Richmond, California**

August 29, 2018
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prepared by:

CDIM Engineering, Inc.
45 Polk Street, 3rd Floor
San Francisco, CA 94102

CDIM's work for the Levin Richmond Terminal Corporation was conducted under my supervision. To the best of my knowledge, the data contained herein are true and accurate, are based on what can be reasonably understood as a result of this project, and satisfy the scope of work prescribed by the client for this project. The data, findings, recommendations, specifications, or professional opinions were prepared solely for the use of the Levin Richmond Terminal Corporation in accordance with generally accepted professional engineering and geologic practice. We make no other warranty, either expressed or implied, and are not responsible for the interpretation by others of the contents herein.



A handwritten signature in blue ink that reads "Scott Bourne".

Scott Bourne, PE #C72817
Principal Engineer

August 29, 2018

Date

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ACRONYMS AND ABBREVIATIONS

BMP	best management practices
CDIM	CDIM Engineering, Inc.
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
EPA	United States Environmental Protection Agency
gpm	gallons per minute
Heckathorn Site or Site	United Heckathorn Superfund Site
IGP	Storm Water Industrial General Permit
LRT	Levin Richmond Terminal
LRTC	Levin Richmond Terminal Corporation
MDL	method detection limit
msl	mean sea level
NAL	numeric action level
NPDES	National Pollutant Discharge Elimination System
O&G	oil and grease
O&M	operations and maintenance
O&M Plan	Revised Draft Operations and Maintenance Plan, Upland Capping System, Former United Heckathorn Site
pg/L	picograms per liter
QSE	Qualified Storm Event
ROD	Record of Decision
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
Third Five-Year Review	Third Five-Year Review Report for United Heckathorn Superfund Site, Richmond, California
TS-2	advanced storm water treatment system TS-2
TSS	total suspended solids

1 INTRODUCTION

On behalf of the Levin Richmond Terminal Corporation (LRTC), CDIM Engineering, Inc. (CDIM) has prepared this 2017-2018 Annual Report to describe the inspection, monitoring, and maintenance performed on the upland cap at the United Heckathorn Superfund Site (Heckathorn Site).

1.1 Background

From 1947 through 1966, the Heckathorn Site was used for formulating, processing, packaging, and shipping pesticides including aldrin, dichlorodiphenyltrichloroethane (DDT), dieldrin, and endrin. These activities resulted in the release of pesticides to the surrounding soils and the Lauritzen Channel. In 1994, after remedial investigation and feasibility studies were completed, the United States Environmental Protection Agency (EPA) adopted a Record of Decision (ROD) for remedial action requiring:

- Dredging of all soft bay mud from the Lauritzen Channel and the Parr Canal, with offsite disposal of dredged material;
- Placement of clean material after dredging;
- Construction of a cap at and around the former Heckathorn facility to prevent erosion;
- A deed restriction limiting the property at the former Heckathorn facility location to non-residential uses; and,
- Marine monitoring to verify the effectiveness of the remedy (EPA, 1994b).

In 1996, LRTC entered a Consent Decree¹ with the EPA, which outlined LRTC's responsibility to design, construct, and maintain a concrete cap at and around the former Heckathorn facility to prevent erosion (United States District Court, 1996a). LRTC completed construction of the concrete cap in July 1999 (PES, 1999b.)

Since the cap was constructed, EPA has completed four five-year reviews; it has found the upland remedial action is functioning as intended, is protective of human health and the environment, and has met the remedial action objective for the upland area by capping of contaminated soils, which has eliminated human exposure pathways and has prevented erosion (EPA, 2016a).

¹ Montrose Chemical Corporation of California, Chris-Craft Industrial, Rhone-Poulenc, Inc. and Stauffer Management Company (collectively the "Montrose Group") entered into a separate Consent Decree with EPA for dredging of young bay mud from the Lauritzen Channel and Parr Canal, with offsite disposal of dredged material and placement of clean fill after dredging (United States District Court, 1996b).

1.2 Program Objectives

To ensure long-term protection of human health and the environment, the remedial action goal established by the EPA for upland and embankment soils is the prevention of erosion and transport into the Lauritzen Channel (EPA, 1994a).

The upland cap was designed to prevent the release of residual chlorinated pesticides that are present in soils (PES, 1998).

The objective of the cap inspection and storm water monitoring programs is to identify any potential release of pesticide-impacted soil by examining the integrity of the cap system through visual inspection and storm water monitoring (EPA, 2011).

1.3 Operation and Maintenance Program

LRTC performs operations and maintenance (O&M) activities in accordance with the Revised Draft Operations and Maintenance Plan, Upland Capping System, Former United Heckathorn Site (O&M Plan; PES, 1999a). LRTC performs additional O&M activities as recommended by EPA in the Third Five-Year Review Report for United Heckathorn Superfund Site, Richmond, California (Third Five-Year Review; EPA, 2011) to provide added confidence that the upland area remedy maintains its effectiveness.

1.4 Contents of this Report

This Annual Report describes activities performed by LRTC to inspect, monitor and maintain the upland cap for the period of July 1, 2017 to June 30, 2018. Included is a summary of each of the following:

- Capping system maintenance activities;
- Storm water collection system inspection and cleaning;
- Storm water system monitoring;
- Storm water treatment;
- Annual cap inspection;
- Proposed site work for 2018-2019; and,
- A conclusion with CDIM's opinion as to the overall condition and effectiveness of the cap in meeting the program objectives.

2 SITE DESCRIPTION

The Levin Richmond Terminal (LRT) is located at 402 Wright Avenue in Richmond, California and is immediately adjacent to the Lauritzen Channel in the Richmond Harbor (Figure 1). The Heckathorn Site includes the northern five acres of the Main Terminal at LRT, also known as the upland cap area (Figure 2).

2.1 Upland Area Description and Current Use

The upland cap area is bounded by a railroad track and Cutting Boulevard to the north; South Fourth Street to the east; the LRT and Santa Fe Channel to the south; and, the Lauritzen Channel to the west. The majority of the upland cap area is relatively flat with surface elevations of approximately 9 feet above mean sea level (msl), with the exception of the upland cap area north of the Lauritzen Channel; this portion was raised to approximately 15 feet above msl during cap construction.

The upland cap area is used primarily for storage of dry bulk product and railroad operations. Photographs taken during the site inspection are included in Appendix A.

2.2 Nearby Water Bodies

The storm water system in the upland cap area discharges directly to the Lauritzen Channel (Figure 2). The Lauritzen Channel is connected to the San Francisco Bay via the Santa Fe Channel and Richmond Inner Harbor.

2.3 Upland Area Cap

Construction of the concrete cap at the upland cap area began in July 1998, and it was completed in July 1999 (PES, 1999b). Installation of the cap consisted of: (1) site grading to promote surface runoff to the collection points; (2) installation of a drainage system to collect surface runoff, including best management practices (BMPs) for storm water pollution prevention; and (3) construction of a reinforced concrete cap in the majority of the 5-acre area and construction of a geotextile fabric and gravel cap in the railroad track area (Figure 2). The concrete cap consists of a minimum 6-inch thick concrete with a double layer of welded wire fabric reinforcement. The gravel cover consists of a geotextile fabric over a prepared subgrade. The geotextile fabric is covered by a 6-inch layer of gravel.

2.4 Storm Water Collection and Advanced Treatment

The facility is paved with asphalt and concrete and is graded to direct surface water runoff via sheet flow or shallow swales to drop inlets (Figure 3). The drop inlets drain to five below-grade interceptors² (SW-3 through SW-7) via underground pipe. The interceptors are equipped with compartments and steel baffles to allow the settling of sediments and separation of oil/grease and floatables. Each interceptor is also equipped with normally-

² The interceptors design was based on a five-minute retention time during a 10-year, 24-hour storm event (PES, 1999a).

closed gate valves at the effluent pipe, which can be opened during heavy rains to enable direct discharge to the Lauritzen Channel.

In 2015, LRTC modified³ the upland cap area storm water collection system and installed advanced storm water treatment system TS-2 (TS-2). Single-speed submersible pumps placed into the final chamber of each interceptor were connected to newly installed storm drain pipe along the edge of the LRTC pier. During storm events, the submersible pumps push storm water captured by interceptors SW-3 to SW-7 through an inline static mixer where a biopolymer flocculant is added. Storm water then flows into a series of two 21,000-gallon aboveground clarification tanks, where flocculant and solids separate from the water. Storm water overflows from the second clarifier and is pumped through four, 48-inch diameter sand filters. Effluent from the treatment system then is discharged to the Lauritzen Channel at the interceptor SW-5 outfall. TS-2 is equipped with a variable speed drive for pump control, a programmable logic controller, and a human machine interface.

The estimated flow for the SW-3 to SW-7 catchments that results from a 0.2 inch per hour design storm intensity⁴ is approximately 500 gallons per minute (gpm). TS-2 is designed to treat approximately 650 gpm. Additionally, due to the storage volume provided by interceptors, clarifiers and equalization tank, the system is able to capture and treat periods of storm water flow in excess of 650 gpm before treatment bypass occurs.

³ The storm water treatment system was described in the 2014-2015 annual report and a telephone conversation (December 26, 2014) and email correspondence (January 26, 2016) between Rachelle Thompson of EPA and Scott Bourne, formerly of Weiss Associates.

⁴ Design criteria for flow-based treatment established in IGP (SWRCB, 2014).

3 OPERATION AND MAINTENANCE

This section describes the operation and maintenance activities performed by LRTC for the upland cap at the Heckathorn Site during the 2017-2018 reporting year. These activities included:

- Upland cap maintenance;
- Storm water collection system inspection and cleaning;
- Storm water monitoring; and,
- Storm water treatment and operation.

3.1 Upland Cap Maintenance

During the 2017-2018 reporting year, LRTC monitored the performance of the concrete cap and gravel cover in accordance with recommendations contained in the 2016-2017 Annual Report (CDIM, 2017). LRTC regularly monitored the cap and inspected cracks, seals, and joints for signs of propagation and/or degradation. No evidence of exposed underlying soil was observed, and minor surficial cracks were addressed as described in Section 4.1 below. The upland cap functioned as designed, and no major maintenance or repair of the cap was conducted during the current reporting period.

LRTC repaired deteriorating concrete located in the southern portion of the eastern swale, which was identified for monitoring and potential repair in the 2016-2017 Annual Report (CDIM, 2017) (Appendix A; Photos 1 and 2). Additionally, LRTC repaired surficial cracks at some locations in the upland cap area (Appendix A; Photos 2 through 7). Repair work was performed during dry-weather conditions and did not disturb underlying soil.

3.2 Storm Water Collection System Inspection and Cleaning

LRTC inspected the storm drain inlets, interceptors and clarifier tanks prior to the rainy season and monthly throughout the reporting year per its Storm Water Pollution Prevention Plan (SWPPP; CDIM, 2016). Storm water interceptors and the clarifier tanks were cleaned before the start of the rainy season. Drain inlets and inlet filters were cleaned and replaced as-needed throughout the year. Accumulated material that was removed from the inlets, interceptors and clarifier tanks appeared to be bulk product, which LRTC returned to the bulk product piles.

3.3 Storm Water Monitoring

The objective of the storm water monitoring program is to verify the cap is effectively preventing erosion, reducing the potential for storm water contact with soils containing residual pesticides and reducing the potential for release of residual pesticides to the Lauritzen Channel. This section describes the storm water sampling, results, and quality assurance/quality control procedures. It also includes an assessment of the results.

3.3.1 Storm Water Sampling

LRTC sampled industrial storm water discharges in accordance with State Water Resources Control Board (SWRCB) Water Quality Order No. 2014-0057-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001, *General Permit for Storm Water Discharges Associated with Industrial Activities* (IGP; SWRCB, 2014); the O&M Plan (PES, 1999a) and a Consent Decree between the San Francisco Baykeeper and the Levin Richmond Terminal Corporation (United States District Court, 2014)⁵. Storm water monitoring requirements are documented in LRTC's SWPPP.

Prior to 2015, LRTC collected samples from interceptors SW-3 through SW-7. Since installing advanced treatment system TS-2, LRTC no longer regularly discharges storm water at these locations. As a result, LRTC now collects storm water samples from the TS-2 influent and effluent.⁶ In the event that elevated pesticides are detected in the TS-2 influent or effluent, LRTC is prepared to sample at interceptors SW-3 through SW-7.

Storm water samples were submitted to Vista Analytical in El Dorado Hills, California for pesticide analysis by EPA Method 1699. Storm water samples were submitted to Eurofins Calscience Environmental Laboratories in Concord, California for the following analyses: pH by Standard Method 4500HB, total suspended solids (TSS) by Standard Method 2540D, oil and grease (O&G) by EPA 1644A, and metals by EPA Method 200.8. Original laboratory reports, including applicable chain-of-custody forms, are included in Appendix B.⁷

3.3.2 Sample Results

During the 2017-2018 reporting year, storm water from the combined TS-2 influent and effluent was sampled during four storm events: January 4, 2018; January 8, 2018; January 22, 2018; and, March 1, 2018.

3.3.2.1 Effluent Sample Results

Tables 1 and 2 show laboratory analytical results for pesticides and general parameters/metals, respectively. Pesticides were detected in the treated storm water discharge samples (TS2-E) from each of the four storm events sampled during the 2017-2018 reporting year. Total DDT⁸ was detected at concentrations ranging from 111 to 18,893 picograms per liter (pg/L); dieldrin was detected at concentrations ranging from 519 to 5,410 pg/L. TS-2 discharge results for all other pollutants (metals, O&G pH and TSS) were below the numeric action levels (NALs; State Water Resources Control Board, 2014) during the 2017-2018 reporting year.

⁵ During the 2017-2018 reporting year, LRTC was unable to collect storm water samples during the first half of the reporting year (July 1 to December 31) due to a low number of Qualified Storm Events (QSEs). Therefore, samples were collected during four QSEs from the second half of the reporting year (January 1 to June 30).

⁶ Changes to storm water monitoring were discussed during a telephone conversation on November 3, 2015 between Rachelle Thompson of EPA and Scott Bourne of Weiss Associates.

⁷ Laboratory analytical reports include data for LRT storm water discharge points that are not located in the upland cap area (TS1-E, TS3-E, TS4-E).

⁸ Total DDT represents the sum of detected concentrations of 4,4' and 2,4'- isomers of DDT, DDD, and DDE and/or the detection limits for non-detected compounds.

3.3.2.2 Influent Sample Results

Samples of the combined influent to TS-2 (TS2-I) were collected during each of the four storm events. Influent samples were composited using the SW-3, SW-4, and the combined SW-5/6/7 influent feeds; volume from each feed was calculated based on the estimated runoff contribution to TS-2 discharge. Total DDT was detected in the influent at concentrations ranging from 29,807 to 81,010 pg/L; dieldrin was detected at concentrations ranging from 1,720 to 7,610 pg/L.

3.3.3 Quality Assurance/Quality Control

The O&M Plan stipulates that at least one duplicate sample be collected for analysis by EPA Method 8080 per storm sampling event. However, due to the change to EPA Method 1699, it was determined that a duplicate pesticide sample was no longer necessary. EPA Method 1699 employs high-resolution gas chromatography/high-resolution mass spectrometry with isotope dilution and internal standard quantification techniques to provide improved sensitivity and data quality. In future years, a duplicate sample can be collected upon EPA request. A duplicate sample for general parameters and metals was collected during the January 22, 2018 storm event.

Laboratory method detection limits (MDLs) for each DDT isomer, and the sum of the MDLs for all DDT isomers, were below the total DDT final surface water remediation level of 590 pg/L established in the ROD (EPA, 1994b) for all events. The MDL for dieldrin was below the final surface water remediation level of 140 pg/L.

No data quality issues were reported through the data validation process. Based on the data validation process, the data resulting from sampling and analysis are acceptable and complete.

3.3.4 Assessment of Results

Pesticides were detected in all TS-2 influent and effluent samples during the 2017-2018 reporting year. Total DDT was detected in two of the four effluent samples at concentrations above the surface water remediation level of 590 pg/L. Dieldrin was detected in all four effluent samples at concentrations above the surface water remediation level of 140 pg/L. Figure 4 and 5 present trend charts showing influent and effluent DDT⁹ and dieldrin concentrations from October 2015 to present¹⁰, including detected concentrations and MDLs when pesticides were not detected.¹¹ Sample results from the 2017-2018 reporting year show that TS-2 is effective at reducing concentrations of total DDT, dieldrin, TSS and metals. While concentrations show a relatively high degree of variability within a rain year and between rain years, both influent and effluent concentrations in 2017-2018 reporting year were generally consistent with concentrations from previous years.

⁹ Note that plotted DDT values are for the sum of the 4,4'- and 2,4'- isomers of DDT, DDD, and DDE.

¹⁰ Concentration trend charts for DDT and dieldrin for individual storm water discharge locations from 2011 to 2015 are contained in the 2014-2015 Annual Report (Weiss, 2015).

¹¹ Denoted by "<n", where n is MDL, if available, or reporting limit otherwise.



3.4 Storm Water Treatment System Operation

LRT received approximately 16 inches of rainfall¹² during the 2017-2018 reporting period. According to the LRTC, TS-2 provided sufficient treatment capacity to prevent treatment system bypass for all time periods when its operation was observed. No significant operation and maintenance concerns were encountered.

¹² Rainfall from LRTC rain gauge.

4 ANNUAL SITE INSPECTION

Representatives of LRTC and CDIM inspected the upland cap on June 8, 2018. The inspection included visual observations of the concrete cap, gravel cover, and drainage system throughout the observable extent of the upland cap area. Appendix A includes photographs taken during the inspections. Figure 3 shows the locations of the photographs. Appendix C includes the inspection form.

4.1 Concrete Cap Inspection

Visual inspections concentrated on identifying signs of deterioration and exposure of the underlying subgrade at cracks, joints, high-loading areas, gravel and cap penetrations. Areas were identified in the Third Five-Year Review (EPA, 2011) and the 2016-2017 Annual Report (CDIM, 2017) with cracks and potential settlement were reexamined.

- **SW-3 Area** – Minor surficial cracks were repaired in the alleyway west of the bulk product area and to the south of the bulk product area (Appendix A; Photos 3 and 4).
- **SW-4 Area** – Minor surficial cracks were repaired in the vicinity of SW-4 and in the alleyway west of the bulk product secondary storage area. Cracks surrounding the drain inlets were also repaired (Appendix A; Photos 5 and 6). Minor surficial cracks and seams were observed in the bulk product storage area (Appendix A; Photos 8 and 9).
- **SW-5 Area** – Minor surficial cracks and seams were noted in the vicinity of interceptor #5 and treatment system TS-2 (Appendix A; Photo 10). Settlement at the railroad track was observed east of interceptor #5. Settlement appears to be caused by local concrete damage (Appendix A; Photo 7). Cracks and deteriorated concrete at the railroad crossing in the southern portion of the eastern swale (noted in the 2016-2017 annual report) were repaired (Appendix A; Photos 2 and 7).
- **SW-6 Area** – Minor cracks and seams were noted in the vicinity of interceptor #6 and east of the railroad tracks (Appendix A; Photos 11 and 12).
- **SW-7 Area** – Minor surficial cracks were observed throughout this area (Appendix A; Photos 13 and 14). Shotcrete applied to the northern shoreline of the Lauritzen Channel appeared to be in good condition (Appendix A; Photo 15)

No evidence of differential settling or vertical displacement was observed across most of the cap. Local settling of railroad track was observed east of interceptor #5. No evidence of cracks, gaps, significant cap deterioration, or other material breach with apparent potential for exposure of the underlying subgrade was observed during the inspection. CDIM recommends that LRTC continue to monitor the cracks and deterioration noted during the inspection. Repair of the area where local settling of the railroad track east of interceptor #5 was observed may be required in 2018-2019.

4.2 Gravel Cover Inspection

Visual observations of the gravel cover concentrated on identifying areas where the gravel cover was thin. A geotextile membrane underlies the gravel cover, but it was not visually observed in any of the areas inspected. Below is a summary of observations from the concrete cap inspection.

- **SW-4 Area** – The gravel cover appeared adequate; the underlying geotextile fabric was not exposed in any area (Appendix A; Photo 16).
- **SW-5 Area** – The gravel cover appeared adequate; the underlying geotextile fabric was not exposed in any area (Appendix A; Photos 16 and 17).
- **SW-6 Area** – The gravel cover appeared adequate; the underlying geotextile fabric was not exposed in any area (Appendix A; Photo 18).

No visual evidence of differential settling or vertical displacement was observed. Overall, the gravel cover was found to be in good condition and functioning properly with no apparent potential for exposure of the underlying subgrade. CDIM recommends that LRTC continue to regularly inspect the gravel cover and to perform maintenance as detailed in Section 6.

5 PROPOSED SITE WORK FOR 2017-2018

During the 2017-2018 reporting year, O&M activities will continue as follows:

- Storm water discharge samples will be collected from the TS-2 treatment system effluent (combined SW-3 through SW-7) discharge location. TS-2 influent samples will also be collected to evaluate system effectiveness.
- An annual inspection of the concrete cap and gravel cover in the upland cap area will be performed in the early summer of 2019.
- Regular inspections of the upland capping system, including the drainage system, will continue as part of the SWPPP (CDIM, 2016) compliance activities and daily operations.
- As needed, significant cracks will be filled, and deteriorated sections of concrete in the upland capping system will be replaced.

Proposed site work under the O&M Plan for 2018-2019 is presented in Table 3.

Any repairs to the cap, if required, will be documented and reported in a memorandum to the EPA and the California Department of Toxic Substances Control.

6 CONCLUSIONS AND RECOMMENDATIONS

The annual upland capping system inspection found that the surface cap is in overall good condition, and it effectively functions to prevent erosion of the underlying soil. Storm water sampling results from the upland cap area indicate that treatment system TS-2 is effective in reducing the discharge of pesticides.

CDIM recommends continuing the following maintenance and monitoring activities:

- Monitor gravel cover areas near interceptors #4, #5 and #6;
- Monitor the concrete cap at the railroad crossing in the southern portion of the eastern swale for deterioration caused by the failing railroad track and repair as needed;
- As needed, fill any significant cracks and replace deteriorated sections of concrete in the upland capping system;
- Implement regular inspections and BMPs identified in LRTC's SWPPP (CDIM, 2016); and,
- Continue to monitor storm water for pesticides as described herein.

7 REFERENCES

- CDIM Engineering (CDIM), 2016. Storm Water Pollution Prevention Plan, Levin Richmond Terminal, 402 Wright Avenue, Richmond, California, September.
- _____, 2017. 2016-2017 Annual Report for United Heckathorn Superfund Site, Upland Capping System, Richmond, California, August 31.
- PES Environmental, Inc. (PES), 1998. Pre-Final/Final Design and Remedial Action Work Plan, Former United Heckathorn Site, Upland Capping Project, Richmond, California. April 7.
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- United States Environmental Protection Agency (EPA), 1994a. Feasibility Study for the United Heckathorn Superfund Site, Richmond, California. July.
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- _____, 2011. Third Five-Year Review Report for United Heckathorn Superfund Site, Richmond, California, September.
- _____, 2016a. Fourth Five-Year Review Report for United Heckathorn Superfund Site, Richmond, California, August.
- Weiss Associates, 2015. 2014-2015 Annual Report for the United Heckathorn Superfund Site, Upland Capping System, Richmond, California, September 11.



TABLES



Table 1. 2017-2018 Annual Storm Water Sampling Data for Pesticides

Discharge Location	Analytical results ^a																												
	2,4'-DDD pg/L	4,4'-DDD pg/L	2,4'-DDE pg/L	4,4'-DDE pg/L	2,4'-DDT pg/L	4,4'-DDT pg/L	Total DDT pg/L	Aldrin pg/L	alpha-BHC pg/L	alpha-Chlordane pg/L	beta-BHC pg/L	cis-Nonachlor pg/L	delta-BHC pg/L	Dieldrin pg/L	Endosulfan I pg/L	Endosulfan II pg/L	Endosulfan sulfate pg/L	Endrin pg/L	Endrin aldehyde pg/L	Endrin ketone pg/L	gamma-BHC (Lindane) pg/L	gamma-Chlordane pg/L	Heptachlor pg/L	Heptachlor epoxide ^e pg/L	Hexachlorobenzene pg/L	Methoxychlor pg/L	Mirex pg/L	Oxychlordane pg/L	trans-Nonachlor pg/L
INFLUENT																													
TS2-I ^b																													
1/4/2018	5,470	11,100	833 J	12,000	5,750	22,800	57,953 J	<353	<132	2,950	<172	<964	<123	7,020	<1,360	<1,620	<3,040	1,600 J	<1,650	<3,610	<185	4,060	<70.9	<3,382	1,820 J,B	<6,980	<387	<1,090	<949
1/8/2018	5,090	12,400	961	17,000	9,460	26,600 D	71,511 D	82.1	63.2	991	<62.3*	<172	<16.6	3,070	<100 D	<250	<382 D	1,360	<565	<1260	66.3	1,060	68.3	<365*	1,070 B	<1120	<98.6	<99.7	<491*
1/22/2018	8,990	18,700	1,120	17,500	7,300	27,400 D	81,010 D	7,600	183	3,830	639	<977	495	7,610	<624	<1,470	<2,190	2,110	<841	<1,900	223	6,840 D	<32.7	<1,230	1,910 B	<2,090	<355	4,830	1,800
3/1/2018	1,500	2,690	417	6,960	3,840	14,400	29,807	<64.8	67.5	887	<53.5	<365	<61.3	1,720	<218	<1300	<1050	1,180	<3170	<3180	79.5	486	<23.4	<494	1,930 B, D	<1540	<342	<108	<218
EFFLUENT																													
TS2-E ^c																													
1/4/2018	105	158	14.0 J	134	69.9	200	681 J	<3.72	28.4 J	73.8	53.2	<8.74	<2.20	1,040	<13.9	<14.3	<7.19	331	<5.79	633	33.6 J	58.0	<1.35	<284.4*	18.2 J,B	<3.98	<1.06	<10.1	<9.12
1/8/2018	73.2	99.7	<2.13	55.5	38.8	95.9	363	<4.99	42.8	59.7	37.3 J	<9.98	4.32 J	1,010	<18.4	<17.1	<7.44	398	<2.90	425	71.5	42.6	<1.56	<136.9*	14.9 J,B	<2.73	<0.725	<13.2	<11.4
1/22/2018	4,160	9,110	140	2,680	493	2,310	18,893	8,530	105	2,460	526	<261	318	5,410	<402	<367	<568	1,440	<252	3,680	169	6,710 D	<15.4 D	<766	40.2 B	<110	<57.6	<285	991
3/1/2018	29.6 J	37.6 J	<4.06	17.6 J	<7.18	26.2 J	111 J	<7.94	46.3	<33.4*	25.7 J	<12	<8.15	519	<27.6	<36.3	<26.2	256	<11.5	229	39.6 J	<26.2	<1.91	<82.6	8.96 J, B	<5.52	<2.79	<26.1	<21.8
Remediation Goal ^d							590	140																					

Notes:
Detected concentrations of pesticides are displayed in **bold**.
* Not detected; reported value is estimated maximum possible concentration.
^a Laboratory method EPA 1699.
^b TS2-I is the combined influent from interceptors SW-3 to SW-7 and does not represent discharge. It is used to evaluate TS-2 effectiveness.
^c TS2-E is the effluent of treatment system TS-2, which treats storm water from interceptors SW-3 to SW-7. It represents facility discharge.
^d Remediation goal from USEPA Superfund Record of Decision: United Heckathorn Co., October 1994, for surface waters in the Lauritzen, Santa Fe, and lower Richmond Inner Harbor Channels.
^e Reported result is sum of detected cis- and trans-heptachlor epoxide concentrations.

Acronyms/Abbreviations:
< n =not detected above the sample-specific estimated detec J = concentration reported is an estimated value
B = compound was also detected in laboratory method blank pg/L = picograms per liter
D = sample diluted for analysis; concentration calculated valu USEPA = United States Environmental Protection Agency

Table 2. 2017-2018 Annual Storm Water Sampling Data for General Parameters and Metals

Discharge Location	Notes	Analytical Parameters ^a							
		pH	O&G (HEM)	TSS	Aluminum	Copper	Iron	Lead	Zinc
		-	mg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
INFLUENT									
TS2-I^b									
1/4/2018		7.44	1.3	332	1,250	70.8	7,690	118	360
1/8/2018		7.30	1.6	172	767	23.4	2,550	72.7	271
1/22/2018		7.24	1.6	196	530	14.3	1,650	29.2	195
3/1/2018		7.77	2.0	214	1,180	11.6	2,230	23.7	313
EFFLUENT									
TS2-E^c									
1/4/2018		7.66	<1.0	5.3	16.5 J	3.09	135	2.60 J	102
1/8/2018		7.64	<1.0	<1.0	16.0 J	2.04	21.7 J	0.811 J	56.8
1/22/2018		7.58	<1.0	<1.0	17.0 J	2.35	32.6 J	0.999 J	57.2
1/22/2018	Duplicate	7.58	<1.0	<1.0	17.1 J	2.75	29.2 J	0.959 J	63.0
3/1/2018		7.94	<1.0	1.9	16.4 J	10.2	17.1 J	1.49	84.0 B
2014 IGP Numeric Action Levels (NALs)^d		6.0-9.0 ^e	15	100	750	33.2	1,000	262	260

Notes:

Bold values exceed 2014 IGP NALs listed at the bottom of the table.

^a Laboratory Methods: pH by SM4500HB; TSS by SM2540D, O&G by EPA 1664A; metals by EPA 200.8.

^b TS2-I is the combined influent from interceptors SW-3 to SW-7 and does not represent discharge. It is used to evaluate TS-2

^c TS2-E is the effluent of treatment system TS-2, which treats storm water from interceptors SW-3 to SW-7.

^d Numeric Action Level (NAL) in 2014 General Permit for Storm Water Discharges Associated with Industrial Activities (2014 IGP). California State Water Resources Control Board, April 1, 2014. Annual average unless otherwise noted.

^e Instantaneous maximum NAL in 2014 IGP.

Acronyms/Abbreviations:

< n = not detected above the detection limit

B = analyte was present in the associated method blank

EPA = Environmental Protection Agency

IGP = Industrial General Permit

J = concentration reported is an estimated value

mg/L = milligrams per liter

NAL = numeric action level

O&G HEM = oil and grease, hexane extractable material

TSS = total suspended solids

ug/L = micrograms per liter

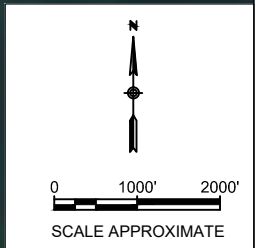
Table 3. Proposed Site Work for 2018-2019, Levin Richmond Terminal Corporation

Aspect	Description	Anticipated Completion Date
General	Implement activities (i.e., cap maintenance, storm water monitoring, interceptor cleanout) described in the O&M Plan. ¹	Continuously
	Submit report of O&M performed for the period of July 1, 2018 to June 30, 2019.	On/around August 15, 2019
Concrete Cap	Perform 2018-2019 annual inspection of the cap under oversight of a registered engineer.	June 1, 2019
	Monitor ongoing settlement of railroad track east of Interceptor #5. If repairs are necessary to safely operate railroad, repair track by replacing ties, improving subgrade and replacing track. Follow procedures outlined in O&M Plan (PES, 1998).	As-needed
	Monitor identified cracks, seals, and joints for signs of propagation and/or degradation throughout upland capping system.	Continuously
Gravel Cover	Monitor the gravel cover throughout the Upland Area for signs of thinning or ground exposure.	Continuously
Storm Water System	Continue to treat combined storm water pumped from interceptors SW-3, SW-4, SW-5, SW-6, and SW-7 at treatment system TS-2 using flocculation, settling, and filtration methods.	Continuously

¹ Revised Draft Operations and Maintenance Plan, Upland Capping System, Former United Heckathorn Site, PES Environmental, Inc., March 1999.



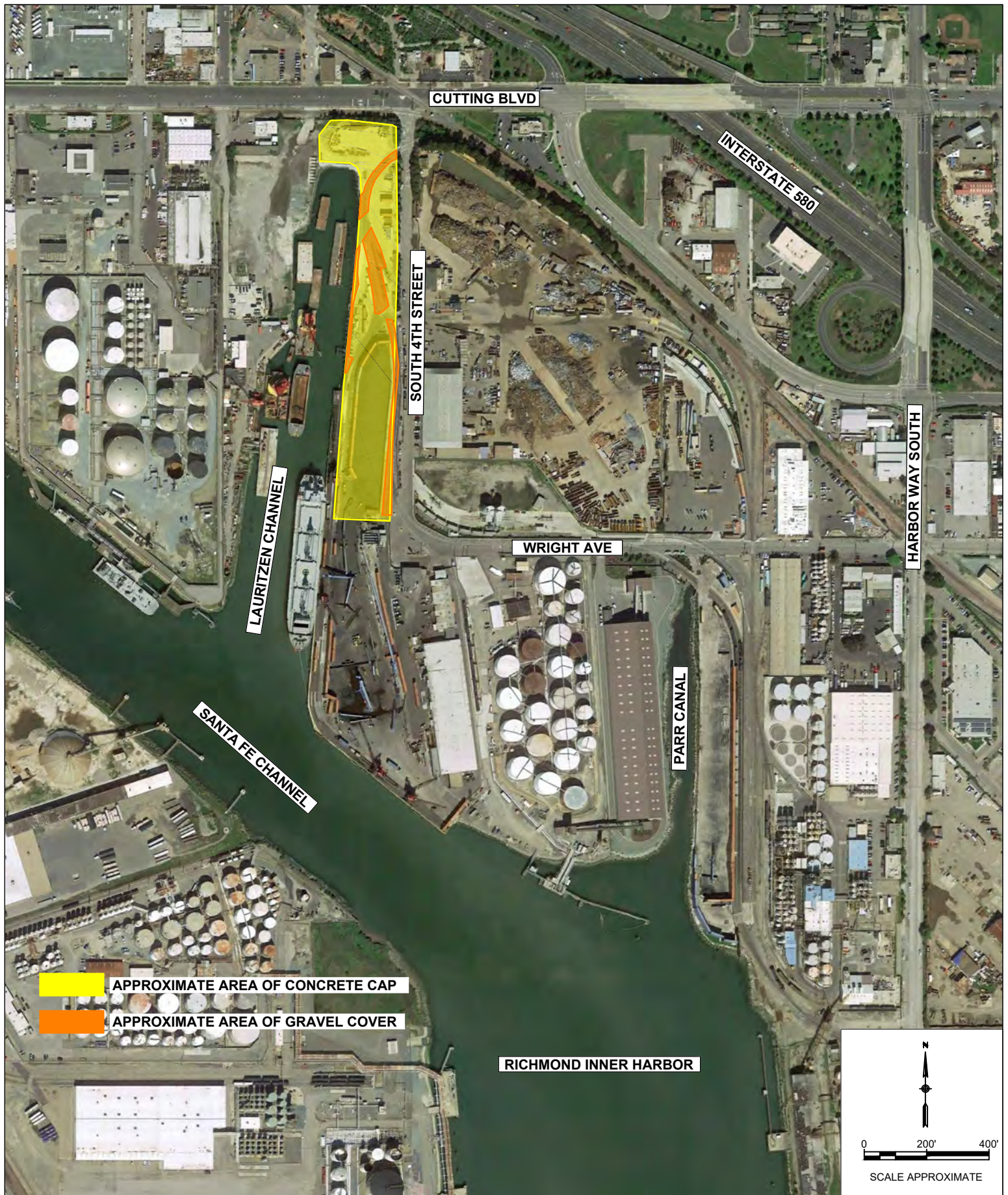
FIGURES



45 POLK STREET, THIRD FLOOR
SAN FRANCISCO, CA 94102
WWW.CDIMENGINEERING.COM
PH: (415) 498-0535

SITE LOCATION MAP
UNITED HECKATHORN SUPERFUND SITE
UPLAND CAPPING SYSTEM
RICHMOND, CALIFORNIA

FIGURE
1

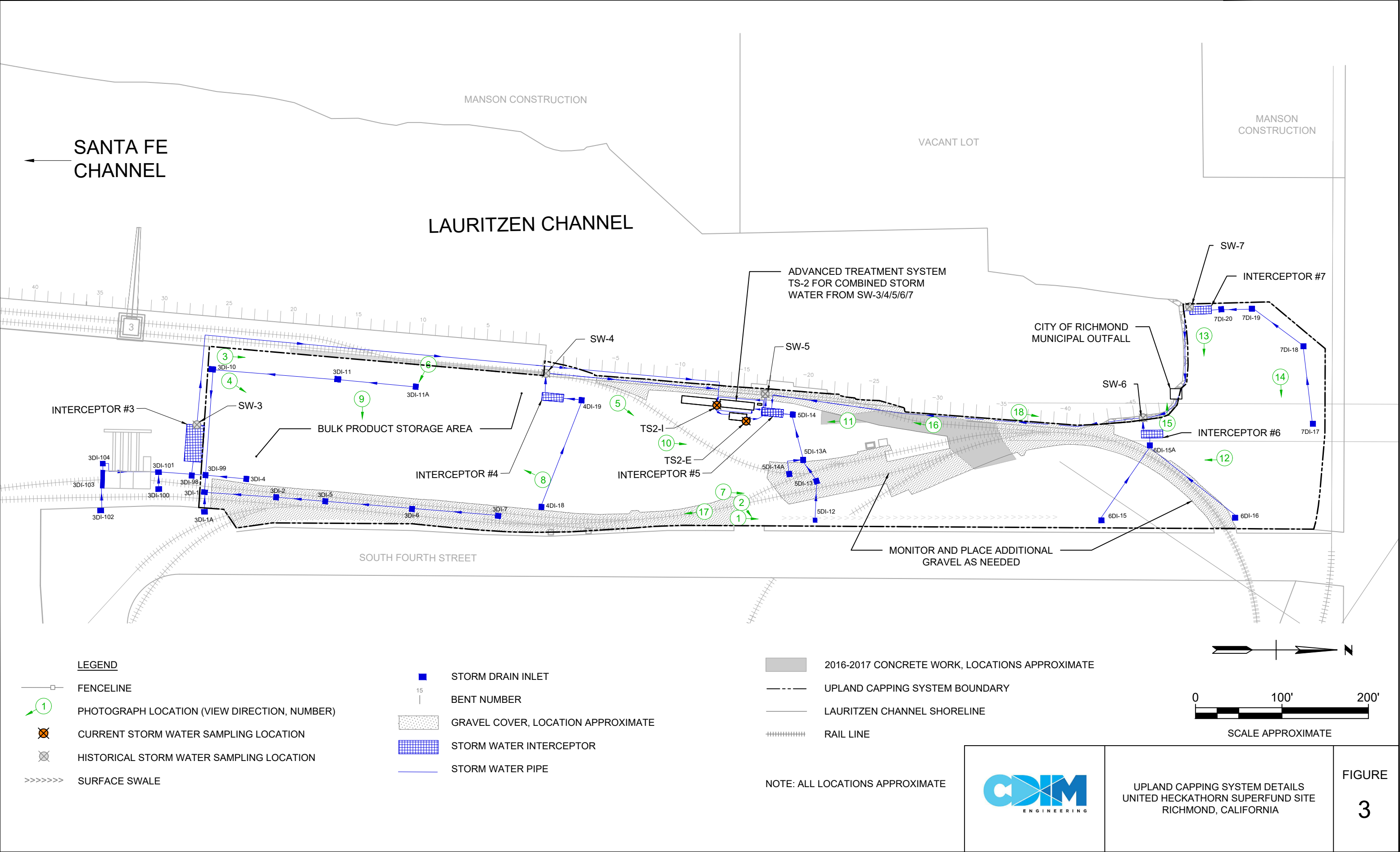


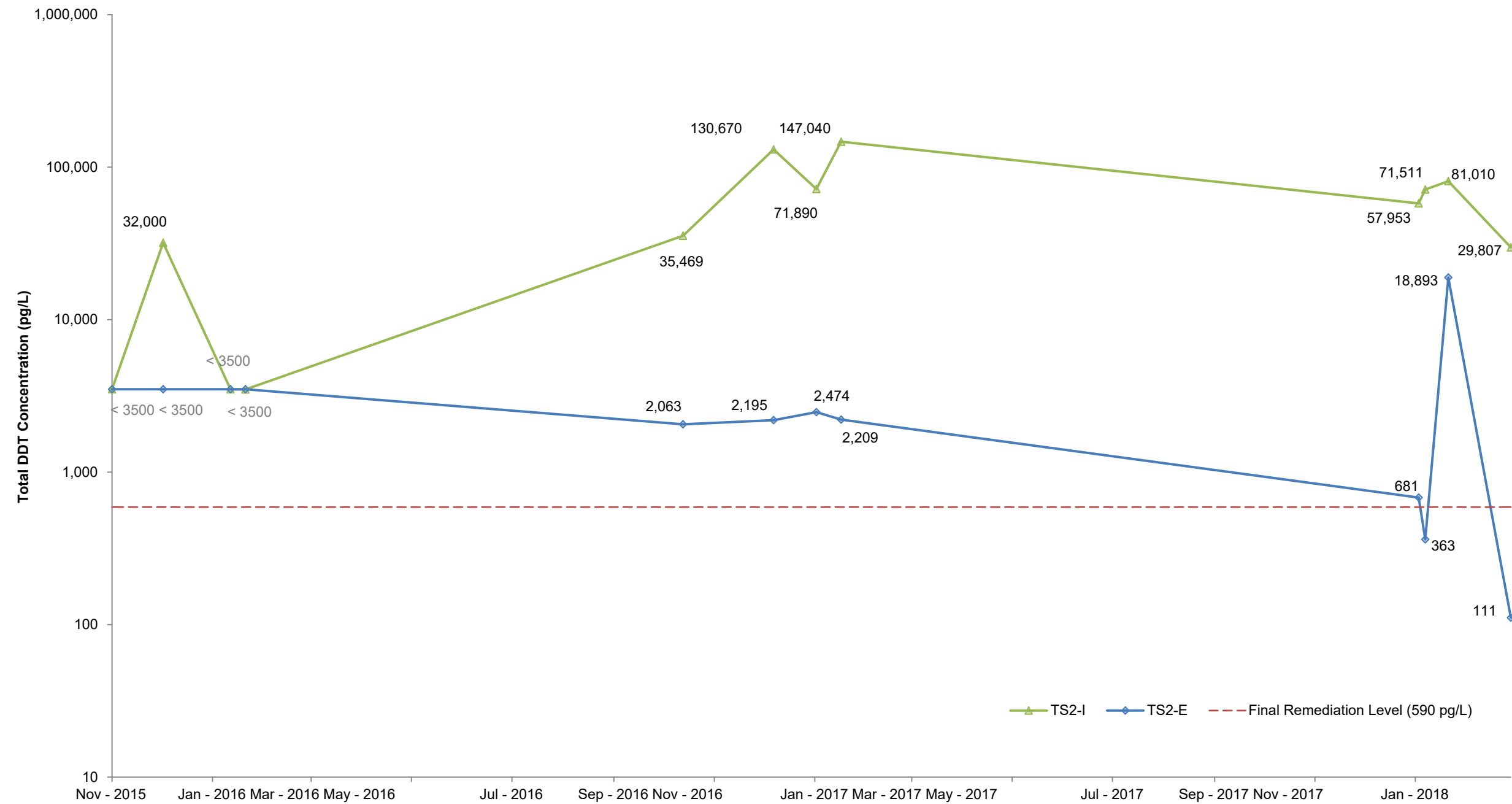
45 POLK STREET, THIRD FLOOR
SAN FRANCISCO, CA 94102
WWW.CDIMENGINEERING.COM
PH: (415) 498-0535

SITE LAYOUT
UNITED HECKATHORN SUPERFUND SITE
UPLAND CAPPING SYSTEM
RICHMOND, CALIFORNIA

FIGURE

2





NOTES:
 TOTAL DDT REPRESENTS THE SUM OF DETECTED DDT, DDD, AND DDE CONCENTRATIONS
 AND/OR DETECTION LIMITS FOR NON-DETECTED COMPOUNDS (DENOTED BY < N).
 RESULTS REPORTED IN pg/L



TOTAL DDT, 2015-2018
 TREATMENT SYSTEM TS-2
 UNITED HECKATHORN SUPERFUND SITE
 UPLAND CAPPING SYSTEM
 RICHMOND, CALIFORNIA

FIGURE
 4



NOTES:
RESULTS REPORTED IN pg/L



DIELDRIN, 2015-2018
TREATMENT SYSTEM TS-2
UNITED HECKATHORN SUPERFUND SITE
UPLAND CAPPING SYSTEM
RICHMOND, CALIFORNIA

FIGURE
5



APPENDIX A

Upland Capping System Inspection Photographs



Photo 1 – Photo taken during the 2016-2017 Annual Upland Capping System Inspection. Deteriorated concrete is visible in the southern portion of the eastern swale. This photo was taken prior to repairs.



Photo 2 – Deteriorated concrete in the southern portion of the eastern swale has been repaired.



Photo 3 – Looking north along western alley of secondary bulk product storage area. Surfacial cracks repaired with sealant.



Photo 4 – Looking northeast at the area south of the secondary bulk product storage area. Surfacial cracks repaired with sealant.



Photo 5 – Surficial cracks repaired with sealant northwest of the secondary storage area.



Photo 6 – Drain inlet located in western alley of secondary bulk product storage area. Surficial cracking repaired with sealant.



Photo 7 – Cracks repaired with sealant at railroad crossing in the southern portion of the eastern swale.

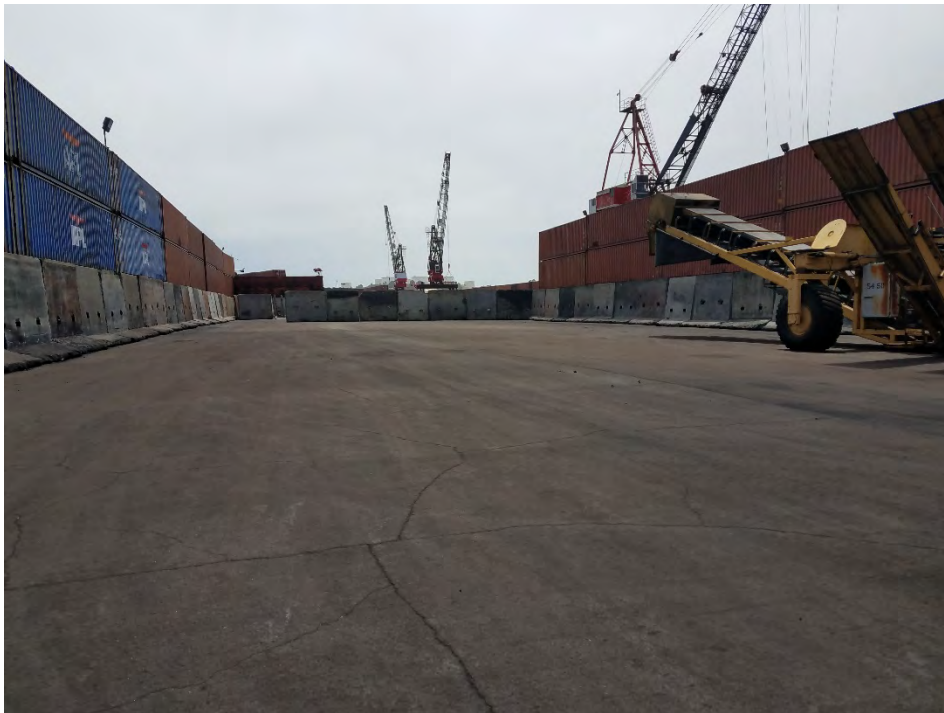


Photo 8 – Looking south: surficial cracking within secondary storage area.



Photo 9 – Looking east: seams and surficial cracking within secondary storage area.



Photo 10 – Looking north at the paved railroad crossing located to the north of the secondary storage area. Small cracks visible in the foreground.



Photo 11 – Looking south at the surficial cracks on concrete cap north of TS-2.



Photo 12 – Looking south near northeast gate. Minor surficial cracking observed in the area.



Photo 13 – Looking east at the seam in the concrete cap north of the Lauritzen Channel.



Photo 14 – Looking east at surficial cracks in concrete cap north of the Lauritzen Channel.



Photo 15 – Looking west toward the municipal outfall. Shotcrete has been applied to stabilize the area along northern shoreline



Photo 16 – Looking south: gravel cover is visible along the Lauritzen Channel north of TS-2.



Photo 17 – Looking south along eastern border of the site. The gravel cover has been maintained along rail lines.



Photo 18 – Looking north at the concrete cap and gravel cover along Lauritzen Channel.



APPENDIX B

Laboratory Analytical Reports

**WORK ORDER NUMBER: 18-01-0231***The difference is service*

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For**Client:** CDIM Engineering**Client Project Name:** LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1**Attention:** Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a simple oval border.

Approved for release on 01/12/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1
 Work Order Number: 18-01-0231

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Work Order Narrative

Work Order: 18-01-0231Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/05/18. They were assigned to Work Order 18-01-0231.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-0231
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-001-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/05/18 11:10
	Number of Containers: 29

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-E-180104	18-01-0231-1	01/04/18 08:10	9	Aqueous
TS2-E-180104	18-01-0231-2	01/04/18 08:40	5	Aqueous
TS3-E-180104	18-01-0231-3	01/04/18 09:26	5	Aqueous
TS4-E-180104	18-01-0231-4	01/04/18 09:38	5	Aqueous
TSX-E-DUP-180104	18-01-0231-5	01/04/18 09:40	5	Aqueous

Detections Summary

Client: CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Work Order: 18-01-0231
 Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1
 Received: 01/05/18

Attn: Scott Bourne

Page 1 of 2

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-E-180104 (18-01-0231-1)						
Copper	0.00246		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00447		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0607		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0169	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.157		0.0500	mg/L	EPA 200.8	N/A
pH	6.81	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-E-180104 (18-01-0231-2)						
Copper	0.00309		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00260	J	0.000449*	mg/L	EPA 200.8	N/A
Zinc	0.102		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0165	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.135		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	5.3		1.0	mg/L	SM 2540 D	N/A
pH	7.13	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-E-180104 (18-01-0231-3)						
Copper	0.00249		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00174		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0441		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0117	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.106		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	1.4		1.0	mg/L	SM 2540 D	N/A
pH	7.48	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-E-180104 (18-01-0231-4)						
Copper	0.000855	J	0.000140*	mg/L	EPA 200.8	N/A
Lead	0.000239	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0590		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.00878	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.702		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	2.1		1.0	mg/L	SM 2540 D	N/A
pH	7.19	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-0231
Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1
Received: 01/05/18

Attn: Scott Bourne

Page 2 of 2

Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
TSX-E-DUP-180104 (18-01-0231-5)						
Copper	0.000880	J	0.000140*	mg/L	EPA 200.8	N/A
Lead	0.000244	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0586		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.00920	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.733		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	2.2		1.0	mg/L	SM 2540 D	N/A
pH	7.21	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180104	18-01-0231-1-E	01/04/18 08:10	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS2-E-180104	18-01-0231-2-D	01/04/18 08:40	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS3-E-180104	18-01-0231-3-D	01/04/18 09:26	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS4-E-180104	18-01-0231-4-D	01/04/18 09:38	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
--------------	----------------	----------------	---------	-----	----------	----------------	------------

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TSX-E-DUP-180104	18-01-0231-5-D	01/04/18 09:40	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-77	N/A	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180104	18-01-0231-1-I	01/04/18 08:10	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS2-E-180104	18-01-0231-2-E	01/04/18 08:40	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	5.3	1.0	0.83	1.00	

TS3-E-180104	18-01-0231-3-E	01/04/18 09:26	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	1.4	1.0	0.83	1.00	

TS4-E-180104	18-01-0231-4-E	01/04/18 09:38	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1
---------------------	-----------------------	-----------------------	----------------	------------	-----------------	-----------------------	-------------------

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	2.1	1.0	0.83	1.00	

TSX-E-DUP-180104	18-01-0231-5-E	01/04/18 09:40	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1
-------------------------	-----------------------	-----------------------	----------------	------------	-----------------	-----------------------	-------------------

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	2.2	1.0	0.83	1.00	

Method Blank	099-09-010-8771	N/A	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1
---------------------	------------------------	------------	----------------	------------	-----------------	-----------------------	-------------------

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180104	18-01-0231-1-A	01/04/18 08:10	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	6.81	0.01	0.01	1.00	BV,BU

TS2-E-180104	18-01-0231-2-A	01/04/18 08:40	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.13	0.01	0.01	1.00	BV,BU

TS3-E-180104	18-01-0231-3-A	01/04/18 09:26	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.48	0.01	0.01	1.00	BV,BU

TS4-E-180104	18-01-0231-4-A	01/04/18 09:38	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.19	0.01	0.01	1.00	BV,BU

TSX-E-DUP-180104	18-01-0231-5-A	01/04/18 09:40	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.21	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180104	18-01-0231-1-B	01/04/18 08:10	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:00	180109LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00246	0.00100	0.000140	1.00	
Lead	0.00447	0.00100	0.0000898	1.00	
Zinc	0.0607	0.00500	0.000479	1.00	
Aluminum	0.0169	0.0500	0.00331	1.00	J
Iron	0.157	0.0500	0.00926	1.00	

TS2-E-180104	18-01-0231-2-B	01/04/18 08:40	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:03	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00309	0.00100	0.000140	1.00	
Zinc	0.102	0.00500	0.000479	1.00	
Aluminum	0.0165	0.0500	0.00331	1.00	J
Iron	0.135	0.0500	0.00926	1.00	

TS2-E-180104	18-01-0231-2-B	01/04/18 08:40	Aqueous	ICP/MS 03	01/09/18	01/11/18 12:04	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Lead	0.00260	0.00500	0.000449	5.00	J

TS3-E-180104	18-01-0231-3-B	01/04/18 09:26	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:05	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00249	0.00100	0.000140	1.00	
Lead	0.00174	0.00100	0.0000898	1.00	
Zinc	0.0441	0.00500	0.000479	1.00	
Aluminum	0.0117	0.0500	0.00331	1.00	J
Iron	0.106	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-E-180104	18-01-0231-4-B	01/04/18 09:38	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:44	180109LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.000855	0.00100	0.000140	1.00	J
Lead	0.000239	0.00100	0.0000898	1.00	J
Zinc	0.0590	0.00500	0.000479	1.00	
Aluminum	0.00878	0.0500	0.00331	1.00	J
Iron	0.702	0.0500	0.00926	1.00	

TSX-E-DUP-180104	18-01-0231-5-B	01/04/18 09:40	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:46	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.000880	0.00100	0.000140	1.00	J
Lead	0.000244	0.00100	0.0000898	1.00	J
Zinc	0.0586	0.00500	0.000479	1.00	
Aluminum	0.00920	0.0500	0.00331	1.00	J
Iron	0.733	0.0500	0.00926	1.00	

Method Blank	099-16-094-2153	N/A	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:50	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180104	Sample	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2
TS1-E-180104	Matrix Spike	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2
TS1-E-180104	Matrix Spike Duplicate	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	19.23	16.63	86	17.02	89	64-132	2	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180104	Sample	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:00	180109SA2
TS1-E-180104	Matrix Spike	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:55	180109SA2
TS1-E-180104	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:58	180109SA2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.002464	0.1000	0.1010	99	0.1028	100	80-120	2	0-20	
Lead	0.004466	0.1000	0.1132	109	0.1133	109	80-120	0	0-20	
Zinc	0.06069	0.1000	0.1580	97	0.1887	128	80-120	18	0-20	3
Aluminum	ND	0.1000	0.1111	111	0.1097	110	80-120	1	0-20	
Iron	0.1574	5.100	5.859	112	5.841	111	80-120	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-0298-2	Sample	Aqueous	N/A	01/08/18 00:00	01/08/18 14:00	I0108TSSD2
18-01-0298-2	Sample Duplicate	Aqueous	N/A	01/08/18 00:00	01/08/18 14:00	I0108TSSD2

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	916.0	896.0	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18

Work Order: 18-01-0231

Preparation: N/A

Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-E-180104	Sample	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
TS1-E-180104	Sample Duplicate	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
pH	6.810	6.720	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 1 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-927-77	LCS	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2				
099-16-927-77	LCSD	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2				
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS</u>	<u>Conc.</u>	<u>LCS</u>	<u>LCSD</u>	<u>%Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	20.00	16.50		82	16.60	83	64-132	1	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0231
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8771	LCS	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1			
099-09-010-8771	LCSD	Aqueous	N/A	01/08/18	01/08/18 14:00	I0108TSSL1			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	100.0	100	97.00	97	80-120	3	0-20	

Quality Control - LCS

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 01/05/18
 Work Order: 18-01-0231
 Preparation: N/A
 Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-001-
 LRTC, Task 1

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2153	LCS	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:53	180109LA2
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.09918	99	80-120	
Lead		0.1000	0.1074	107	80-120	
Zinc		0.1000	0.1032	103	80-120	
Aluminum		0.1000	0.09105	91	80-120	
Iron		5.100	5.310	104	80-120	

Sample Analysis Summary Report

Work Order: 18-01-0231

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1009	N/A	1
SM 4500 H+ B	N/A	1139	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-01-0231

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables
and the original chain-of-custody form to:
sab@cdimengineering.com
mec@cdimengineering.com

INSTRUCTIONS FOR LAB PERSONNEL:

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

18-01-0231

Client Contact		Project Manager: Scott Bourne		Protocol ID/Path:		COC Number:																	
CDIM ENGINEERING		Project ID: 101-002-LRTC, Task 1				Page <u>1</u> of <u>1</u>																	
45 POLK STREET, 3RD FLOOR		Sampled by: MEC				SDG number:																	
SAN FRANCISCO, CA		Sample date(s): 1/4/18																					
(415) 498-0535		PHONE																					
Job Name: LRTC Annual Storm Water Sampling		Analysis Turnaround Time:																					
Address: Levin Richmond Terminal, 402 Wright Avenue, Richmond, CA 94804		Standard																					
Lab ID	Sample Identification	Sample Date	Sample Time	Sample Matrix	# of Cont.	Analyte (Method ID)	PH (SM 4500HB)	Total Suspended Solids (SM 2540D)	Oil & Grease (EPA 1664A SGT-HEM)	Total Metals- Al, Cu, Fe, Pb, Zn (EPA 200.8 ICP-MS)	Sample Specific Notes:												
1	TS1-E-190104	1/4/18	0910	W	89		X	X	X	X	MS/MSD (collect triple sample volume)												
2	TS2-E-190104		0940		85		X	X	X	X													
3	TS3-E-190104		0926		85		X	X	X	X													
4	TS4-E-190104		0938		85		X	X	X	X													
5	TSX-E-DUP-190104		0940	↓	85		X	X	X	X													
						Field Filtered (X):																	
						1	1	1,2	1,4	1,4	1	1	1	1	1	1	1	1	1	1	1	1	1
Preservation Used: 1= Ice, 2= HCl; 3= H ₂ SO ₄ ; 4=HNO ₃ ; 5=NaOH; 6= Other																							
Special Instructions/QC Requirements & Comments: Level II Report. Report with reporting limit and method detection limit. Analyze and report only the metals listed above.																							

Relinquished by:	Company: CDIM	Date/Time: 1/4/18 1400	Received by:	Company: ECI	Date/Time: 1/4/18 1400
Relinquished by:	Company: ECI	Date/Time: 1/4/18 1730	Received by:	Company: ECI	Date/Time: 1/5/18 1110
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

x = Samples released to a secured, locked area.
● = Samples received from a secured, locked area



800-322-5555
www.gso.com

Ship From

CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 538983120**NPS**

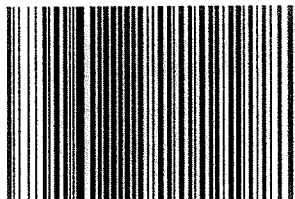
0231

Ship To

CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE**A****COD:** \$0.00**Weight:** 0 lb(s)**Reference:**

CDIM

Delivery Instructions:**D92845A**

77511148

Signature Type: STANDARD

Print Date: 1/4/2018 3:30 PM

Package 2 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1CLIENT: CDIMDATE: 01/05/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.2 °C (w/ CF): 2.4 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: IS

CUSTODY SEAL:

Cooler ☒ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A Checked by: ISSample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A Checked by: 1050

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☐ No ☐ N/A☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☒ No ☐ N/AProper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☒ Yes ☐ No ☐ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 125PB ☐ 125PB_{znna} (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☒ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☒ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1050s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄·H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: IS



WORK ORDER NUMBER: 18-01-0232

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CDIM Engineering

Client Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Attention: Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, enclosed in an oval.

Approved for release on 01/12/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 18-01-0232

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Work Order Narrative

Work Order: 18-01-0232Page 1 of 1

Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/05/18. They were assigned to Work Order 18-01-0232.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-0232
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-001-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/05/18 11:10
	Number of Containers: 21

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-I-180104	18-01-0232-1	01/04/18 08:00	5	Aqueous
TS2-I-180104	18-01-0232-2	01/04/18 08:28	5	Aqueous
TS3-I-180104	18-01-0232-3	01/04/18 09:02	5	Aqueous
TS4-I-180104	18-01-0232-4	01/04/18 09:47	5	Aqueous
SW1-180104	18-01-0232-5	01/04/18 08:00	1	Aqueous

Detections Summary

Client: CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Work Order: 18-01-0232
 Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1
 Received: 01/05/18

Attn: Scott Bourne

Page 1 of 2

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-I-180104 (18-01-0232-1)						
HEM - SGT: Oil and Grease	4.6		1.0	mg/L	EPA 1664A	N/A
Copper	0.0890		0.00500	mg/L	EPA 200.8	N/A
Lead	0.565		0.00500	mg/L	EPA 200.8	N/A
Zinc	1.08		0.0250	mg/L	EPA 200.8	N/A
Aluminum	1.72		0.250	mg/L	EPA 200.8	N/A
Iron	6.23		0.250	mg/L	EPA 200.8	N/A
Solids, Total Suspended	138		1.00	mg/L	SM 2540 D	N/A
pH	7.44	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-I-180104 (18-01-0232-2)						
HEM - SGT: Oil and Grease	1.3		1.0	mg/L	EPA 1664A	N/A
Copper	0.0708		0.00500	mg/L	EPA 200.8	N/A
Lead	0.118		0.00500	mg/L	EPA 200.8	N/A
Zinc	0.360		0.0250	mg/L	EPA 200.8	N/A
Aluminum	1.25		0.250	mg/L	EPA 200.8	N/A
Iron	7.69		0.250	mg/L	EPA 200.8	N/A
Solids, Total Suspended	332		1.00	mg/L	SM 2540 D	N/A
pH	6.89	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-I-180104 (18-01-0232-3)						
HEM - SGT: Oil and Grease	2.4		1.0	mg/L	EPA 1664A	N/A
Copper	0.0220		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0456		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.183		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.251		0.0500	mg/L	EPA 200.8	N/A
Iron	0.664		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	10		1.0	mg/L	SM 2540 D	N/A
pH	7.74	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-I-180104 (18-01-0232-4)						
HEM - SGT: Oil and Grease	1.1		1.0	mg/L	EPA 1664A	N/A
Copper	0.00913		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0208		0.0100	mg/L	EPA 200.8	N/A
Zinc	0.142		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.160		0.0500	mg/L	EPA 200.8	N/A
Iron	0.633		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	36		1.0	mg/L	SM 2540 D	N/A
pH	6.92	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-0232
Project Name: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1
Received: 01/05/18

Attn: Scott Bourne

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
SW1-180104 (18-01-0232-5)						
Copper	0.0811		0.00500	mg/L	EPA 200.8	N/A
Lead	0.508		0.00500	mg/L	EPA 200.8	N/A
Zinc	0.974		0.0250	mg/L	EPA 200.8	N/A
Aluminum	1.52		0.250	mg/L	EPA 200.8	N/A
Iron	5.65		0.250	mg/L	EPA 200.8	N/A

Subcontracted analyses, if any, are not included in this summary.

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180104	18-01-0232-1-D	01/04/18 08:00	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	4.6	1.0	0.81	1.00	

TS2-I-180104	18-01-0232-2-D	01/04/18 08:28	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.3	1.0	0.81	1.00	

TS3-I-180104	18-01-0232-3-D	01/04/18 09:02	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	2.4	1.0	0.81	1.00	

TS4-I-180104	18-01-0232-4-D	01/04/18 09:47	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.1	1.0	0.81	1.00	

Method Blank	099-16-927-77	N/A	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180104	18-01-0232-1-E	01/04/18 08:00	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	138	1.00	0.829	1.00	

TS2-I-180104	18-01-0232-2-E	01/04/18 08:28	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	332	1.00	0.829	1.00	

TS3-I-180104	18-01-0232-3-E	01/04/18 09:02	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	10	1.0	0.83	1.00	

TS4-I-180104	18-01-0232-4-E	01/04/18 09:47	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	36	1.0	0.83	1.00	

Method Blank	099-09-010-8780	N/A	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

Method Blank	099-09-010-8772	N/A	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180104	18-01-0232-1-A	01/04/18 08:00	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.44	0.01	0.01	1.00	BV,BU

TS2-I-180104	18-01-0232-2-A	01/04/18 08:28	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	6.89	0.01	0.01	1.00	BV,BU

TS3-I-180104	18-01-0232-3-A	01/04/18 09:02	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.74	0.01	0.01	1.00	BV,BU

TS4-I-180104	18-01-0232-4-A	01/04/18 09:47	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	6.92	0.01	0.01	1.00	BV,BU

[Return to Contents](#)

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 01/05/18
 Work Order: 18-01-0232
 Preparation: N/A
 Method: EPA 200.8
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
 LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180104	18-01-0232-1-B	01/04/18 08:00	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:59	180109LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.0890	0.00500	0.000699	5.00	
Lead	0.565	0.00500	0.000449	5.00	
Zinc	1.08	0.0250	0.00239	5.00	
Aluminum	1.72	0.250	0.0165	5.00	
Iron	6.23	0.250	0.0463	5.00	

TS2-I-180104	18-01-0232-2-B	01/04/18 08:28	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:56	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.0708	0.00500	0.000699	5.00	
Lead	0.118	0.00500	0.000449	5.00	
Zinc	0.360	0.0250	0.00239	5.00	
Aluminum	1.25	0.250	0.0165	5.00	
Iron	7.69	0.250	0.0463	5.00	

TS3-I-180104	18-01-0232-3-B	01/04/18 09:02	Aqueous	ICP/MS 03	01/09/18	01/09/18 20:01	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.0220	0.00100	0.000140	1.00	
Lead	0.0456	0.00100	0.0000898	1.00	
Zinc	0.183	0.00500	0.000479	1.00	
Aluminum	0.251	0.0500	0.00331	1.00	
Iron	0.664	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-I-180104	18-01-0232-4-B	01/04/18 09:47	Aqueous	ICP/MS 03	01/09/18	01/09/18 20:04	180109LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00913	0.00100	0.000140	1.00	
Zinc	0.142	0.00500	0.000479	1.00	
Aluminum	0.160	0.0500	0.00331	1.00	
Iron	0.633	0.0500	0.00926	1.00	

TS4-I-180104	18-01-0232-4-B	01/04/18 09:47	Aqueous	ICP/MS 03	01/09/18	01/11/18 12:02	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Lead	0.0208	0.0100	0.000898	10.0	

SW1-180104	18-01-0232-5-A	01/04/18 08:00	Aqueous	ICP/MS 03	01/09/18	01/09/18 20:06	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0811	0.00500	0.000699	5.00	
Lead	0.508	0.00500	0.000449	5.00	
Zinc	0.974	0.0250	0.00239	5.00	
Aluminum	1.52	0.250	0.0165	5.00	
Iron	5.65	0.250	0.0463	5.00	

Method Blank	099-16-094-2153	N/A	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:50	180109LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type		Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number			
18-01-0231-1	Sample		Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2			
18-01-0231-1	Matrix Spike		Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2			
18-01-0231-1	Matrix Spike Duplicate		Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEMS2			
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	19.23	16.63	86	17.02	89	64-132	2	0-34	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-001-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS2-I-180104	Sample	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:56	180109SA2A
TS2-I-180104	Matrix Spike	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:51	180109SA2A
TS2-I-180104	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/09/18	01/09/18 19:54	180109SA2A

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.07082	0.1000	0.1701	99	0.1649	94	80-120	3	0-20	
Lead	0.1184	0.1000	0.2353	117	0.2288	110	80-120	3	0-20	
Zinc	0.3599	0.1000	0.4700	110	0.4523	92	80-120	4	0-20	
Aluminum	1.254	0.1000	1.508	4X	1.421	4X	80-120	4X	0-20	Q
Iron	7.691	5.100	13.49	114	12.95	103	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-I-180104	Sample	Aqueous	N/A	01/08/18 00:00	01/08/18 16:00	I0108TSSD3
TS1-I-180104	Sample Duplicate	Aqueous	N/A	01/08/18 00:00	01/08/18 16:00	I0108TSSD3

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	138.0	136.0	1	0-20	

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-0231-1	Sample	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1
18-01-0231-1	Sample Duplicate	Aqueous	PH 1	N/A	01/05/18 20:00	I0105PHD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	6.810	6.720	1	0-25	

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RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number				
099-16-927-77	LCS	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2				
099-16-927-77	LCSD	Aqueous	N/A	01/08/18	01/08/18 17:55	I0108HEML2				
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS</u>	<u>Conc.</u>	<u>LCS</u>	<u>LCSD</u>	<u>%Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	20.00	16.50		82	16.60	83	64-132	1	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 2 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8780	LCS	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2			
099-09-010-8780	LCSD	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Solids, Total Suspended	100.0	95.00	95	98.00	98	80-120	3	0-20	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8772	LCS	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2			
099-09-010-8772	LCSD	Aqueous	N/A	01/08/18	01/08/18 16:00	I0108TSSL2			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	95.00	95	98.00	98	80-120	3	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/05/18
Work Order: 18-01-0232
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-001-LRTC, Task 1

Page 4 of 4

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2153	LCS	Aqueous	ICP/MS 03	01/09/18	01/09/18 18:53	180109LA2
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.09918	99	80-120	
Lead		0.1000	0.1074	107	80-120	
Zinc		0.1000	0.1032	103	80-120	
Aluminum		0.1000	0.09105	91	80-120	
Iron		5.100	5.310	104	80-120	

Sample Analysis Summary Report

Work Order: 18-01-0232

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1009	N/A	1
SM 4500 H+ B	N/A	1086	PH 1	1


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Glossary of Terms and Qualifiers

Work Order: 18-01-0232

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<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

● = Samples received from a secured, locked area



800-322-5555
www.gso.com

0232

NPS

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 538983119



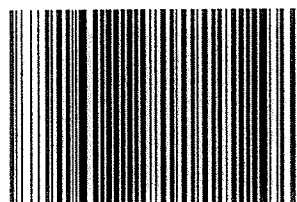
Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

A

COD: \$0.00
Weight: 0 lb(s)
Reference:
CDIM
Delivery Instructions:

D92845A



77511147

Signature Type: STANDARD

Print Date: 1/4/2018 3:30 PM

Package 1 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDIM

DATE: 01/05/2018
TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 1.9 °C (w/ CF): 2.1 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: IS
CUSTODY SEAL:

Cooler ☒ Present and Intact

☐ Present but Not Intact

☐ Not Present

☐ N/A

Checked by: IS

Sample(s) ☐ Present and Intact

☐ Present but Not Intact

☒ Not Present

☐ N/A

Checked by: 1053
SAMPLE CONDITION:

Yes No N/A

Chain-of-Custody (COC) document(s) received with samples ☒ ☐ ☐

COC document(s) received complete ☒ ☐ ☐
☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ ☐ ☐

Sample container label(s) consistent with COC ☒ ☐ ☐

Sample container(s) intact and in good condition ☒ ☐ ☐

Proper containers for analyses requested ☒ ☐ ☐

Sufficient volume/mass for analyses requested ☒ ☐ ☐

Samples received within holding time ☒ ☐ ☐

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ ☒ ☐

Proper preservation chemical(s) noted on COC and/or sample container ☒ ☐ ☐

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Acid/base preserved samples - pH within acceptable range ☒ ☐ ☐

Container(s) for certain analysis free of headspace ☐ ☐ ☒
☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ ☐ ☒
CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna₂ ☐ 100PJ ☐ 100PJna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 125PB ☐ 125PBznna (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☐ 250PB ☒ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGBna₂ ☐ 1AGBs (pH__2) ☒ 1AGBs (O&G) ☒ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: IS



January 29, 2018

Vista Work Order No. 1800015

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 05, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800015**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800015-01	TS2-E-180104	04-Jan-18 08:40	05-Jan-18 10:02	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BLK1				
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 23-Jan-18 21:32 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
Hexachlorobenzene	5.23			J	IS 13C6-Hexachlorobenzene	45.9	5 - 120		
alpha-BHC	ND	2.59			IS 13C6-alpha-BHC	74.7	32 - 130		
Lindane (gamma-BHC)	ND	3.11			IS 13C6-Lindane (gamma-BHC)	86.8	11 - 120		
beta-BHC	ND	3.29			IS 13C6-beta-BHC	87.8	32 - 130		
delta-BHC	ND	2.58			IS 13C6-delta-BHC	88.3	36 - 137		
Heptachlor	ND	0.879			IS 13C10-Heptachlor	70.6	5 - 120		
Aldrin	ND	1.55			IS 13C12-Aldrin	71.7	5 - 120		
Oxychlordane	ND	4.30			IS 13C10-Oxychlordane	83.4	23 - 135		
cis-Heptachlor Epoxide	ND	3.39			IS 13C10-cis-Heptachlor Epoxide	86.6	27 - 137		
trans-Heptachlor Epoxide	ND	10.5			IS 13C10-trans-Chlordane (gamma)	91.0	21 - 132		
trans-Chlordane (gamma)	ND	4.23			IS 13C10-trans-Nonachlor	84.7	14 - 136		
trans-Nonachlor	ND	4.36			IS 13C9-Endosulfan I (alpha)	82.8	15 - 148		
cis-Chlordane (alpha)	ND	4.27			IS 13C12-2,4'-DDE	84.6	47 - 160		
Endosulfan I (alpha)	ND	5.32			IS 13C12-4,4'-DDE	86.2	47 - 160		
2,4'-DDE	ND	3.11			IS 13C12-Dieldrin	93.1	40 - 151		
4,4'-DDE	ND	3.79			IS 13C12-Endrin	104	35 - 155		
Dieldrin	ND	2.36			IS 13C10-cis-Nonachlor	87.6	36 - 139		
Endrin	ND	3.17			IS 13C9-Endosulfan II (beta)	96.8	5 - 122		
cis-Nonachlor	ND	4.84			IS 13C12-2,4'-DDD	95.1	5 - 199		
Endosulfan II (beta)	ND	6.71			IS 13C12-2,4'-DDT	86.1	5 - 199		
2,4'-DDD	ND	3.78			IS 13C12-4,4'-DDD	95.1	5 - 120		
2,4'-DDT	ND	5.33			IS 13C12-4,4'-DDT	87.8	5 - 120		
4,4'-DDD	ND	3.91			IS 13C9-Endosulfan Sulfate	89.9	15 - 148		
4,4'-DDT	ND	6.23			IS 13C12-Methoxychlor	87.4	5 - 120		
Endosulfan Sulfate	ND	5.53			IS 13C10-Mirex	82.5	5 - 120		
4,4'-Methoxychlor	ND	2.82			IS 13C12-Endrin Aldehyde	56.7	15 - 148		
Mirex	ND	1.20			IS 13C12-Endrin Ketone	90.6	15 - 148		
Endrin Aldehyde	ND	4.06							
Endrin Ketone	ND	5.28							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BS1			
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 24-Jan-18 18:03 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	1010	1000	101	50 - 120	IS	13C6-Hexachlorobenzene	42.8	5 - 120
alpha-BHC	991	1000	99.1	50 - 120	IS	13C6-alpha-BHC	76.7	17 - 141
Lindane (gamma-BHC)	989	1000	98.9	50 - 120	IS	13C6-Lindane (gamma-BHC)	87.2	5 - 124
beta-BHC	966	1000	96.6	50 - 120	IS	13C6-beta-BHC	95.0	17 - 141
delta-BHC	974	1000	97.4	50 - 120	IS	13C6-delta-BHC	94.0	16 - 150
Heptachlor	974	1000	97.4	50 - 120	IS	13C10-Heptachlor	77.8	5 - 128
Aldrin	996	1000	99.6	50 - 120	IS	13C12-Aldrin	66.2	5 - 126
Oxychlordane	842	1000	84.2	50 - 120	IS	13C10-Oxychlordane	88.2	5 - 144
cis-Heptachlor Epoxide	968	1000	96.8	50 - 120	IS	13C10-cis-Heptachlor Epoxide	92.3	8 - 146
trans-Heptachlor Epoxide	1010	1000	101	50 - 120	IS	13C10-trans-Chlordane (gamma)	77.9	15 - 144
trans-Chlordane (gamma)	1080	1000	108	50 - 120	IS	13C10-trans-Nonachlor	85.9	13 - 149
trans-Nonachlor	932	1000	93.2	50 - 120	IS	13C9-Endosulfan I (alpha)	78.8	5 - 144
cis-Chlordane (alpha)	876	1000	87.6	50 - 120	IS	13C12-2,4'-DDE	74.1	26 - 169
Endosulfan I (alpha)	982	1000	98.2	50 - 120	IS	13C12-4,4'-DDE	83.5	26 - 169
2,4'-DDE	1030	1000	103	24 - 123	IS	13C12-Dieldrin	84.1	19 - 161
4,4'-DDE	993	1000	99.3	50 - 120	IS	13C12-Endrin	97.3	20 - 157
Dieldrin	948	1000	94.8	50 - 120	IS	13C10-cis-Nonachlor	88.1	17 - 154
Endrin	1020	1000	102	50 - 120	IS	13C9-Endosulfan II (beta)	87.5	5 - 120
cis-Nonachlor	900	1000	90.0	50 - 120	IS	13C12-2,4'-DDD	95.7	14 - 200
Endosulfan II (beta)	1040	1000	104	5 - 200	IS	13C12-2,4'-DDT	94.5	14 - 200
2,4'-DDD	1040	1000	104	50 - 120	IS	13C12-4,4'-DDD	96.4	14 - 200
2,4'-DDT	1030	1000	103	50 - 120	IS	13C12-4,4'-DDT	104	13 - 200
4,4'-DDD	1000	1000	100	42 - 120	IS	13C9-Endosulfan Sulfate	79.6	5 - 144
4,4'-DDT	1020	1000	102	50 - 120	IS	13C12-Methoxychlor	100	8 - 200
Endosulfan Sulfate	942	1000	94.2	50 - 120	IS	13C10-Mirex	88.9	5 - 138
4,4'-Methoxychlor	1010	1000	101	50 - 120	IS	13C12-Endrin Aldehyde	45.6	5 - 144
Mirex	980	1000	98.0	50 - 120	IS	13C12-Endrin Ketone	88.2	5 - 144
Endrin Aldehyde	932	1000	93.2	50 - 134				
Endrin Ketone	921	1000	92.1	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-E-180104					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800015-01	Date Received:	05-Jan-2018 10:02
Project:	101-002-LRTC, Task 1		Sample Size:	0.897 L	QC Batch:	B8A0064	Date Extracted:	11-Jan-2018 11:39
Date Collected:	04-Jan-2018 8:40				Date Analyzed:	24-Jan-18 19:40 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	18.2			J, B	IS 13C6-Hexachlorobenzene	55.5	5 - 120	
alpha-BHC	28.4			J	IS 13C6-alpha-BHC	70.0	32 - 130	
Lindane (gamma-BHC)	33.6			J	IS 13C6-Lindane (gamma-BHC)	78.5	11 - 120	
beta-BHC	53.2				IS 13C6-beta-BHC	89.6	32 - 130	
delta-BHC	ND	2.20			IS 13C6-delta-BHC	86.8	36 - 137	
Heptachlor	ND	1.35			IS 13C10-Heptachlor	66.6	5 - 120	
Aldrin	ND	3.72			IS 13C12-Aldrin	59.8	5 - 120	
Oxychlordane	ND	10.1			IS 13C10-Oxychlordane	71.2	23 - 135	
cis-Heptachlor Epoxide	ND		65.4		IS 13C10-cis-Heptachlor Epoxide	75.1	27 - 137	
trans-Heptachlor Epoxide	ND		219		IS 13C10-trans-Chlordane (gamma)	72.1	21 - 132	
trans-Chlordane (gamma)	58.0				IS 13C10-trans-Nonachlor	76.9	14 - 136	
trans-Nonachlor	ND	9.12			IS 13C9-Endosulfan I (alpha)	70.1	15 - 148	
cis-Chlordane (alpha)	73.8				IS 13C12-2,4'-DDE	67.9	47 - 160	
Endosulfan I (alpha)	ND	13.9			IS 13C12-4,4'-DDE	76.2	47 - 160	
2,4'-DDE	14.0			J	IS 13C12-Dieldrin	76.6	40 - 151	
4,4'-DDE	134				IS 13C12-Endrin	92.3	35 - 155	
Dieldrin	1040				IS 13C10-cis-Nonachlor	78.3	36 - 139	
Endrin	331				IS 13C9-Endosulfan II (beta)	77.2	5 - 122	
cis-Nonachlor	ND	8.74			IS 13C12-2,4'-DDD	87.1	5 - 199	
Endosulfan II (beta)	ND	14.3			IS 13C12-2,4'-DDT	84.5	5 - 199	
2,4'-DDD	105				IS 13C12-4,4'-DDD	85.0	5 - 120	
2,4'-DDT	69.9				IS 13C12-4,4'-DDT	93.7	5 - 120	
4,4'-DDD	158				IS 13C9-Endosulfan Sulfate	71.6	15 - 148	
4,4'-DDT	200				IS 13C12-Methoxychlor	93.1	5 - 120	
Endosulfan Sulfate	ND	7.19			IS 13C10-Mirex	80.2	5 - 120	
4,4'-Methoxychlor	ND	3.98			IS 13C12-Endrin Aldehyde	59.5	15 - 148	
Mirex	ND	1.06			IS 13C12-Endrin Ketone	83.9	15 - 148	
Endrin Aldehyde	ND	5.79						
Endrin Ketone	633							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Chain of Custody Record

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

● = Samples received from a secured, locked area

Sample Log-in Checklist

 Vista Work Order #: 1800015 TAT std

Samples Arrival:	Date/Time 1/5/18 1002	Initials: WUS	Location: WR-2 Shelf/Rack: 1/a
Logged In:	Date/Time 1/5/18 1101	Initials: WUS	Location: WR-2 Shelf/Rack: B-2
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
	<input type="radio"/> GSO	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
Temp °C: 10.7 (uncorrected)	Time: 1004		Thermometer ID: IR-3
Temp °C: 10.4 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	Trk # 7892 2361 5238	✓	
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented:	<input type="radio"/> Na ₂ S ₂ O ₃	<input type="radio"/> Trizma	<input checked="" type="radio"/> None
	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> NA
Shipping Container	<input checked="" type="radio"/> Vista	<input type="radio"/> Client	<input checked="" type="radio"/> Retain
	<input type="radio"/> Return	<input type="radio"/> Dispose	

Comments:



February 21, 2018

Vista Work Order No. 1800017

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 05, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

A rectangular box containing a handwritten signature in black ink that reads "Martha Maier".

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800017**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times. The sample required re-extraction using less volume and 5X the internal standard spiking solution. The re-extraction was performed outside of the hold time.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800017-01	TS2-I-180104	EPA Method 1699	13C10-Heptachlor	H	144

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800017-01	TS2-I-180104	04-Jan-18 08:28	05-Jan-18 10:02	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8B0005			Lab Sample: B8B0005-BLK1				
Sample Size: 0.100 L		Date Extracted: 01-Feb-2018 8:36			Date Analyzed: 14-Feb-18 02:41 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
Hexachlorobenzene	86.9			J	IS	13C6-Hexachlorobenzene	49.9	5 - 120	
alpha-BHC	ND	156			IS	13C6-alpha-BHC	75.1	32 - 130	
Lindane (gamma-BHC)	ND	195			IS	13C6-Lindane (gamma-BHC)	84.4	11 - 120	
beta-BHC	ND	175			IS	13C6-beta-BHC	96.0	32 - 130	
delta-BHC	ND	125			IS	13C6-delta-BHC	99.3	36 - 137	
Heptachlor	ND	147			IS	13C10-Heptachlor	118	5 - 120	
Aldrin	ND	117			IS	13C12-Aldrin	114	5 - 120	
Oxychlordane	ND	367			IS	13C10-Oxychlordane	121	23 - 135	
cis-Heptachlor Epoxide	ND	239			IS	13C10-cis-Heptachlor Epoxide	122	27 - 137	
trans-Heptachlor Epoxide	ND	677			IS	13C10-trans-Chlordane (gamma)	115	21 - 132	
trans-Chlordane (gamma)	ND	265			IS	13C10-trans-Nonachlor	133	14 - 136	
trans-Nonachlor	ND	218			IS	13C9-Endosulfan I (alpha)	121	15 - 148	
cis-Chlordane (alpha)	ND	204			IS	13C12-2,4'-DDE	119	47 - 160	
Endosulfan I (alpha)	ND	411			IS	13C12-4,4'-DDE	120	47 - 160	
2,4'-DDE	ND	170			IS	13C12-Dieldrin	101	40 - 151	
4,4'-DDE	ND	199			IS	13C12-Endrin	104	35 - 155	
Dieldrin	ND	95.2			IS	13C10-cis-Nonachlor	96.6	36 - 139	
Endrin	ND	153			IS	13C9-Endosulfan II (beta)	102	5 - 122	
cis-Nonachlor	ND	144			IS	13C12-2,4'-DDD	101	5 - 199	
Endosulfan II (beta)	ND	226			IS	13C12-2,4'-DDT	91.4	5 - 199	
2,4'-DDD	ND	287			IS	13C12-4,4'-DDD	99.2	5 - 120	
2,4'-DDT	ND	466			IS	13C12-4,4'-DDT	96.5	5 - 120	
4,4'-DDD	ND	298			IS	13C9-Endosulfan Sulfate	118	15 - 148	
4,4'-DDT	ND	470			IS	13C12-Methoxychlor	88.5	5 - 120	
Endosulfan Sulfate	ND	275			IS	13C10-Mirex	87.0	5 - 120	
4,4'-Methoxychlor	ND	59.0			IS	13C12-Endrin Aldehyde	78.2	15 - 148	
Mirex	ND	42.9			IS	13C12-Endrin Ketone	100	15 - 148	
Endrin Aldehyde	ND	238							
Endrin Ketone	ND	280							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8B0005	Lab Sample: B8B0005-BS1				
Sample Size: 0.100 L		Date Extracted: 01-Feb-2018 8:36	Date Analyzed: 13-Feb-18 23:26 Column: ZB-50				
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
Hexachlorobenzene	49600	50000	99.3	50 - 120	IS 13C6-Hexachlorobenzene	64.5	5 - 120
alpha-BHC	49400	50000	98.7	50 - 120	IS 13C6-alpha-BHC	77.9	17 - 141
Lindane (gamma-BHC)	52200	50000	104	50 - 120	IS 13C6-Lindane (gamma-BHC)	81.1	5 - 124
beta-BHC	47400	50000	94.9	50 - 120	IS 13C6-beta-BHC	93.1	17 - 141
delta-BHC	46700	50000	93.4	50 - 120	IS 13C6-delta-BHC	92.3	16 - 150
Heptachlor	46700	50000	93.3	50 - 120	IS 13C10-Heptachlor	107	5 - 128
Aldrin	48200	50000	96.4	50 - 120	IS 13C12-Aldrin	98.6	5 - 126
Oxychlordane	46700	50000	93.4	50 - 120	IS 13C10-Oxychlordane	104	5 - 144
cis-Heptachlor Epoxide	51300	50000	103	50 - 120	IS 13C10-cis-Heptachlor Epoxide	106	8 - 146
trans-Heptachlor Epoxide	61600	50000	123	50 - 120	IS 13C10-trans-Chlordane (gamma)	102	15 - 144
trans-Chlordane (gamma)	52200	50000	104	50 - 120	IS 13C10-trans-Nonachlor	107	13 - 149
trans-Nonachlor	49100	50000	98.1	50 - 120	IS 13C9-Endosulfan I (alpha)	115	5 - 144
cis-Chlordane (alpha)	45800	50000	91.5	50 - 120	IS 13C12-2,4'-DDE	108	26 - 169
Endosulfan I (alpha)	47200	50000	94.4	50 - 120	IS 13C12-4,4'-DDE	107	26 - 169
2,4'-DDE	48000	50000	96.1	24 - 123	IS 13C12-Dieldrin	93.5	19 - 161
4,4'-DDE	46400	50000	92.8	50 - 120	IS 13C12-Endrin	93.1	20 - 157
Dieldrin	48700	50000	97.5	50 - 120	IS 13C10-cis-Nonachlor	92.0	17 - 154
Endrin	49800	50000	99.7	50 - 120	IS 13C9-Endosulfan II (beta)	95.4	5 - 120
cis-Nonachlor	48700	50000	97.4	50 - 120	IS 13C12-2,4'-DDD	93.1	14 - 200
Endosulfan II (beta)	48200	50000	96.3	5 - 200	IS 13C12-2,4'-DDT	85.3	14 - 200
2,4'-DDD	46900	50000	93.7	50 - 120	IS 13C12-4,4'-DDD	88.8	14 - 200
2,4'-DDT	51600	50000	103	50 - 120	IS 13C12-4,4'-DDT	87.9	13 - 200
4,4'-DDD	48400	50000	96.7	42 - 120	IS 13C9-Endosulfan Sulfate	91.4	5 - 144
4,4'-DDT	47800	50000	95.6	50 - 120	IS 13C12-Methoxychlor	86.0	8 - 200
Endosulfan Sulfate	50100	50000	100	50 - 120	IS 13C10-Mirex	88.2	5 - 138
4,4'-Methoxychlor	46900	50000	93.7	50 - 120	IS 13C12-Endrin Aldehyde	46.1	5 - 144
Mirex	46100	50000	92.3	50 - 120	IS 13C12-Endrin Ketone	92.8	5 - 144
Endrin Aldehyde	52500	50000	105	50 - 134			
Endrin Ketone	45800	50000	91.6	50 - 134			

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-I-180104					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800017-01	Date Received:	05-Jan-2018 10:02
Project:	101-002-LRTC, Task 1		Sample Size:	0.100 L	QC Batch:	B8B0005	Date Extracted:	01-Feb-2018 8:36
Date Collected:	04-Jan-2018 8:28				Date Analyzed:	14-Feb-18 06:45 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	1820			J, B	IS 13C6-Hexachlorobenzene	82.5	5 - 120	
alpha-BHC	ND	132			IS 13C6-alpha-BHC	84.7	32 - 130	
Lindane (gamma-BHC)	ND	185			IS 13C6-Lindane (gamma-BHC)	93.0	11 - 120	
beta-BHC	ND	172			IS 13C6-beta-BHC	91.9	32 - 130	
delta-BHC	ND	123			IS 13C6-delta-BHC	92.7	36 - 137	
Heptachlor	ND	70.9			IS 13C10-Heptachlor	144	5 - 120	H
Aldrin	ND	353			IS 13C12-Aldrin	115	5 - 120	
Oxychlordane	ND	1090			IS 13C10-Oxychlordane	110	23 - 135	
cis-Heptachlor Epoxide	ND	882			IS 13C10-cis-Heptachlor Epoxide	83.2	27 - 137	
trans-Heptachlor Epoxide	ND	2500			IS 13C10-trans-Chlordane (gamma)	63.4	21 - 132	
trans-Chlordane (gamma)	4060				IS 13C10-trans-Nonachlor	85.6	14 - 136	
trans-Nonachlor	ND	949			IS 13C9-Endosulfan I (alpha)	91.5	15 - 148	
cis-Chlordane (alpha)	2950				IS 13C12-2,4'-DDE	73.1	47 - 160	
Endosulfan I (alpha)	ND	1360			IS 13C12-4,4'-DDE	61.5	47 - 160	
2,4'-DDE	833			J	IS 13C12-Dieldrin	79.5	40 - 151	
4,4'-DDE	12000				IS 13C12-Endrin	65.6	35 - 155	
Dieldrin	7020				IS 13C10-cis-Nonachlor	49.8	36 - 139	
Endrin	1600			J	IS 13C9-Endosulfan II (beta)	50.6	5 - 122	
cis-Nonachlor	ND	964			IS 13C12-2,4'-DDD	77.4	5 - 199	
Endosulfan II (beta)	ND	1620			IS 13C12-2,4'-DDT	67.6	5 - 199	
2,4'-DDD	5470				IS 13C12-4,4'-DDD	55.3	5 - 120	
2,4'-DDT	5750				IS 13C12-4,4'-DDT	47.6	5 - 120	
4,4'-DDD	11100				IS 13C9-Endosulfan Sulfate	30.9	15 - 148	
4,4'-DDT	22800				IS 13C12-Methoxychlor	30.5	5 - 120	
Endosulfan Sulfate	ND	3040			IS 13C10-Mirex	28.2	5 - 120	
4,4'-Methoxychlor	ND	6980			IS 13C12-Endrin Aldehyde	45.1	15 - 148	
Mirex	ND	387			IS 13C12-Endrin Ketone	33.9	15 - 148	
Endrin Aldehyde	ND	1650						
Endrin Ketone	ND	3610						

DL - Sample specific estimated detection limit

LCL-UCL - Lower control limit - upper control limit

EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

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California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Chain of Custody Record

Vista Analytical
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520

Please send analytic results, electronic deliverables and the original chain-of-custody form to:
 sab@cdimengineering.com
 mec@cdimengineering.com

INSTRUCTIONS FOR LAB PERSONNEL:

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

[illegible]

x = Samples released to a secured, locked area.

● = Samples received from a secured, locked area

Sample Log-in Checklist

 Vista Work Order #: 1800017 TAT std

Samples Arrival:	Date/Time 1/5/18 1002	Initials: WJS	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 1/5/18 1120	Initials: WJS	Location: WR-2 Shelf/Rack: B-2
Delivered By:	<u>FedEx</u> UPS On Trac GSO DHL Hand Delivered Other		
Preservation:	<u>Ice</u> Blue Ice Dry Ice None		
Temp °C: 1.7 (uncorrected)	Time: 1004	Thermometer ID: IR-3	
Temp °C: 1.4 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # 7892 2361 5238	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
Preservation Documented:	Na ₂ S ₂ O ₃ Trizma <u>None</u>	Yes	<u>No</u>	NA
Shipping Container	<u>Vista</u> Client <u>Retain</u> Return Dispose			

Comments:

**WORK ORDER NUMBER: 18-01-0397***The difference is service*

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For**Client:** CDIM Engineering**Client Project Name:** LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1**Attention:** Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in an oval.

Approved for release on 01/16/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 18-01-0397

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Work Order Narrative

Work Order: 18-01-0397

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/09/18. They were assigned to Work Order 18-01-0397.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-0397
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-003-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/09/18 11:00
	Number of Containers: 29

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-E-180108	18-01-0397-1	01/08/18 08:40	9	Aqueous
TS2-E-180108	18-01-0397-2	01/08/18 09:31	5	Aqueous
TS3-E-180108	18-01-0397-3	01/08/18 09:06	5	Aqueous
TS4-E-180108	18-01-0397-4	01/08/18 09:18	5	Aqueous
TSX-E-DUP-180108	18-01-0397-5	01/08/18 09:35	5	Aqueous

Detections Summary

Client: CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Work Order: 18-01-0397
 Project Name: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1
 Received: 01/09/18

Attn: Scott Bourne

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Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-E-180108 (18-01-0397-1)						
HEM - SGT: Oil and Grease	1.0		1.0	mg/L	EPA 1664A	N/A
Copper	0.00153		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00335		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0719		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0389	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0596		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	2.8		1.0	mg/L	SM 2540 D	N/A
pH	7.93	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-E-180108 (18-01-0397-2)						
Copper	0.00204		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000811	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0568		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0160	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0217	J	0.00926*	mg/L	EPA 200.8	N/A
pH	7.42	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-E-180108 (18-01-0397-3)						
Copper	0.00132		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00112		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0435		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0121	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0175	J	0.00926*	mg/L	EPA 200.8	N/A
pH	7.89	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-E-180108 (18-01-0397-4)						
Copper	0.00209		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000352	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0413		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0169	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0644		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	1.7		1.0	mg/L	SM 2540 D	N/A
pH	7.65	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TSX-E-DUP-180108 (18-01-0397-5)						
Copper	0.00139		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00106		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0498		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0138	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0178	J	0.00926*	mg/L	EPA 200.8	N/A
pH	7.98	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-0397
Project Name: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1
Received: 01/09/18

Attn: Scott Bourne

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
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Subcontracted analyses, if any, are not included in this summary.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180108	18-01-0397-1-E	01/08/18 08:40	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.0	1.0	0.81	1.00	

TS2-E-180108	18-01-0397-2-D	01/08/18 09:31	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS3-E-180108	18-01-0397-3-D	01/08/18 09:06	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS4-E-180108	18-01-0397-4-C	01/08/18 09:18	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TSX-E-DUP-180108	18-01-0397-5-D	01/08/18 09:35	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-80	N/A	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180108	18-01-0397-1-I	01/08/18 08:40	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	2.8	1.0	0.83	1.00	

TS2-E-180108	18-01-0397-2-E	01/08/18 09:31	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS3-E-180108	18-01-0397-3-E	01/08/18 09:06	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS4-E-180108	18-01-0397-4-E	01/08/18 09:18	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	1.7	1.0	0.83	1.00	

TSX-E-DUP-180108	18-01-0397-5-E	01/08/18 09:35	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

Method Blank	099-09-010-8788	N/A	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180108	18-01-0397-1-A	01/08/18 08:40	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.93	0.01	0.01	1.00	BV,BU

TS2-E-180108	18-01-0397-2-A	01/08/18 09:31	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.42	0.01	0.01	1.00	BV,BU

TS3-E-180108	18-01-0397-3-A	01/08/18 09:06	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.89	0.01	0.01	1.00	BV,BU

TS4-E-180108	18-01-0397-4-A	01/08/18 09:18	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.65	0.01	0.01	1.00	BV,BU

TSX-E-DUP-180108	18-01-0397-5-A	01/08/18 09:35	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.98	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 01/09/18
 Work Order: 18-01-0397
 Preparation: N/A
 Method: EPA 200.8
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-
 LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180108	18-01-0397-1-B	01/08/18 08:40	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:45	180112LA1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00153	0.00100	0.000140	1.00	
Lead	0.00335	0.00100	0.0000898	1.00	
Zinc	0.0719	0.00500	0.000479	1.00	
Aluminum	0.0389	0.0500	0.00331	1.00	J
Iron	0.0596	0.0500	0.00926	1.00	

TS2-E-180108	18-01-0397-2-B	01/08/18 09:31	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:47	180112LA1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00204	0.00100	0.000140	1.00	
Lead	0.000811	0.00100	0.0000898	1.00	J
Zinc	0.0568	0.00500	0.000479	1.00	
Aluminum	0.0160	0.0500	0.00331	1.00	J
Iron	0.0217	0.0500	0.00926	1.00	J

TS3-E-180108	18-01-0397-3-B	01/08/18 09:06	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:50	180112LA1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00132	0.00100	0.000140	1.00	
Lead	0.00112	0.00100	0.0000898	1.00	
Zinc	0.0435	0.00500	0.000479	1.00	
Aluminum	0.0121	0.0500	0.00331	1.00	J
Iron	0.0175	0.0500	0.00926	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 01/09/18
 Work Order: 18-01-0397
 Preparation: N/A
 Method: EPA 200.8
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-
 LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-E-180108	18-01-0397-4-B	01/08/18 09:18	Aqueous	ICP/MS 03	01/12/18	01/12/18 21:28	180112LA1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00209	0.00100	0.000140	1.00	
Lead	0.000352	0.00100	0.0000898	1.00	J
Zinc	0.0413	0.00500	0.000479	1.00	
Aluminum	0.0169	0.0500	0.00331	1.00	J
Iron	0.0644	0.0500	0.00926	1.00	

TSX-E-DUP-180108	18-01-0397-5-B	01/08/18 09:35	Aqueous	ICP/MS 03	01/12/18	01/12/18 21:31	180112LA1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00139	0.00100	0.000140	1.00	
Lead	0.00106	0.00100	0.0000898	1.00	
Zinc	0.0498	0.00500	0.000479	1.00	
Aluminum	0.0138	0.0500	0.00331	1.00	J
Iron	0.0178	0.0500	0.00926	1.00	J

Method Blank	099-16-094-2167	N/A	Aqueous	ICP/MS 03	01/12/18	01/12/18 17:44	180112LA1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180108	Sample	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2
TS1-E-180108	Matrix Spike	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2
TS1-E-180108	Matrix Spike Duplicate	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	1.000	20.00	16.30	76	16.50	78	64-132	1	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180108	Sample	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:45	180112SA1
TS1-E-180108	Matrix Spike	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:40	180112SA1
TS1-E-180108	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:42	180112SA1

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.001528	0.1000	0.09382	92	0.09911	98	80-120	5	0-20	
Lead	0.003346	0.1000	0.1008	97	0.1071	104	80-120	6	0-20	
Zinc	0.07190	0.1000	0.1580	86	0.1433	71	80-120	10	0-20	3
Aluminum	ND	0.1000	0.1236	124	0.1273	127	80-120	3	0-20	3
Iron	0.05962	5.100	5.000	97	5.211	101	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-0339-2	Sample	Aqueous	N/A	01/10/18 00:00	01/10/18 21:00	I0110TSSD9
18-01-0339-2	Sample Duplicate	Aqueous	N/A	01/10/18 00:00	01/10/18 21:00	I0110TSSD9

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	978.0	956.0	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-E-180108	Sample	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
TS1-E-180108	Sample Duplicate	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
pH	7.930	7.800	2	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 1 of 3

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-80	LCS	Aqueous		N/A	01/13/18	01/13/18 16:25	I0113HEML2			
099-16-927-80	LCSD	Aqueous		N/A	01/13/18	01/13/18 16:25	I0113HEML2			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	17.90		90	17.80	89	64-132	1	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8788	LCS	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5			
099-09-010-8788	LCSD	Aqueous	N/A	01/10/18	01/10/18 21:00	I0110TSSL5			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	91.00	91	93.00	93	80-120	2	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0397
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2167	LCS	Aqueous	ICP/MS 03	01/12/18	01/12/18 17:46	180112LA1
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.09996	100	80-120	
Lead		0.1000	0.1036	104	80-120	
Zinc		0.1000	0.09334	93	80-120	
Aluminum		0.1000	0.1000	100	80-120	
Iron		5.100	5.389	106	80-120	

Sample Analysis Summary Report

Work Order: 18-01-0397

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1136	N/A	1
SM 4500 H+ B	N/A	1086	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-01-0397

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables
and the original chain-of-custody form to:
sab@cdimengineering.com
mec@cdimengineering.com

INSTRUCTIONS FOR LAB PERSONNEL:

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

18-01-0397

Client Contact		Project Manager: Scott Bourne		Protocol ID/path:		COC Number:	
CDIM ENGINEERING		Project ID: 101-002 LRTC, Task 1					
45 POLK STREET, 3RD FLOOR		Sampled by: L2/MEC				Page 1 of 1	
SAN FRANCISCO, CA		Sample date(s): 1/9/18				SDG number:	
(415) 498-0535		PHONE					
Job Name: LRTC Annual Storm Water Sampling		Standard					
Address: 402 Wright Avenue, Richmond, CA 94804		(Specify Days or Hours)					
Lab ID	Sample Identification	Sample Date	Sample Time	Sample Matrix	# of Cont.	Analyte (Method ID)	Protocol ID/path:
1	TS1-E-180108	1/9/18	0840	W	9		
2	TS2-E-180109	1/9/18	0931		5		
3	TS3-E-180108	1/9/18	0906		5		
4	TS4-E-180108	1/9/18	0918		5		
5	TSX-E-DUP-180108	1/9/18	0935		5		
Field Filtered (X):							
Preservation Used: 1= Ice, 2= HCl; 3= H ₂ SO ₄ , 4=HNO ₃ ; 5=NaOH; 6= Other							
Special Instructions/QC Requirements & Comments: Level II Report. Report with reporting limit and method detection limit. Analyze and report only the metals listed above.							

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Mary Cunningham	CDIM	1/9/18 1335	[Signature]	ECI	1/8/18 1335
[Signature]	CDIM	1/9/18 1730	[Signature]	ECI	1/9/18 1730
[Signature]	CDIM	1/9/18 1730	[Signature]	ECI	1/9/18 1730

x = Samples released to a secured, locked area.
● = Samples received from a secured, locked area



800-322-5555
www.gso.com

0397

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 539012918

NPS



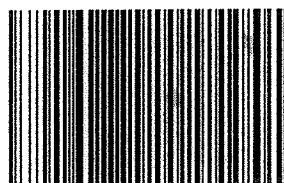
Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

A

COD: \$0.00
Weight: 0 lb(s)
Reference:
CDIM
Delivery Instructions:

D92845A



77629635

Print Date: 1/8/2018 2:15 PM

Package 1 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDIMDATE: 01/09/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.1 °C (w/ CF): 2.3 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: IS

CUSTODY SEAL:

Cooler ☒ Present and Intact☐ Present but Not Intact☐ Not Present☐ N/AChecked by: ISSample(s) ☐ Present and Intact☐ Present but Not Intact☒ Not Present☐ N/AChecked by: 1050

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☒ No ☐ N/A☐ Sampling date ☐ Sampling time ☒ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☒ No ☐ N/AProper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☒ Yes ☐ No ☐ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 125PB ☐ 125PB_{znna} (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☒ 250PB_n (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☒ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1050s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOHReviewed by: 771



WORK ORDER NUMBER: 18-01-0396

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CDIM Engineering

Client Project Name: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Attention: Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Approved for release on 01/16/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Client Project Name: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1
 Work Order Number: 18-01-0396

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/09/18. They were assigned to Work Order 18-01-0396.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-0396
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-003-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/09/18 11:00
	Number of Containers: 20
Attn: Scott Bourne	

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-I-180108	18-01-0396-1	01/08/18 08:34	5	Aqueous
TS2-I-180108	18-01-0396-2	01/08/18 09:44	5	Aqueous
TS3-I-180108	18-01-0396-3	01/08/18 08:59	5	Aqueous
TS4-I-180108	18-01-0396-4	01/08/18 09:20	5	Aqueous

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-0396
Project Name: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1
Received: 01/09/18

Attn: Scott Bourne

Page 1 of 2

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-I-180108 (18-01-0396-1)						
HEM - SGT: Oil and Grease	8.6		1.0	mg/L	EPA 1664A	N/A
Copper	0.0444		0.0100	mg/L	EPA 200.8	N/A
Lead	0.190		0.0100	mg/L	EPA 200.8	N/A
Zinc	0.469		0.0500	mg/L	EPA 200.8	N/A
Aluminum	5.54		0.500	mg/L	EPA 200.8	N/A
Iron	10.4		0.500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	2180		10.0	mg/L	SM 2540 D	N/A
pH	7.82	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-I-180108 (18-01-0396-2)						
HEM - SGT: Oil and Grease	1.6		1.0	mg/L	EPA 1664A	N/A
Copper	0.0234		0.0100	mg/L	EPA 200.8	N/A
Lead	0.0727		0.0100	mg/L	EPA 200.8	N/A
Zinc	0.271		0.0500	mg/L	EPA 200.8	N/A
Aluminum	0.767		0.500	mg/L	EPA 200.8	N/A
Iron	2.55		0.500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	172		1.00	mg/L	SM 2540 D	N/A
pH	7.31	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-I-180108 (18-01-0396-3)						
HEM - SGT: Oil and Grease	1.1		1.0	mg/L	EPA 1664A	N/A
Copper	0.00716		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0420		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.100		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.301		0.0500	mg/L	EPA 200.8	N/A
Iron	0.621		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	16		1.0	mg/L	SM 2540 D	N/A
pH	7.64	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-I-180108 (18-01-0396-4)						
HEM - SGT: Oil and Grease	0.83	J	0.81*	mg/L	EPA 1664A	N/A
Copper	0.00371		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0120		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0513		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.236		0.0500	mg/L	EPA 200.8	N/A
Iron	0.262		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	8.4		1.0	mg/L	SM 2540 D	N/A
pH	7.61	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-0396
Project Name: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1
Received: 01/09/18

Attn: Scott Bourne

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
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Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180108	18-01-0396-1-D	01/08/18 08:34	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	8.6	1.0	0.81	1.00	

TS2-I-180108	18-01-0396-2-D	01/08/18 09:44	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.6	1.0	0.81	1.00	

TS3-I-180108	18-01-0396-3-D	01/08/18 08:59	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.1	1.0	0.81	1.00	

TS4-I-180108	18-01-0396-4-D	01/08/18 09:20	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	0.83	1.0	0.81	1.00	J

Method Blank	099-16-927-80	N/A	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180108	18-01-0396-1-E	01/08/18 08:34	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	2180	10.0	0.829	1.00	

TS2-I-180108	18-01-0396-2-E	01/08/18 09:44	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	172	1.00	0.829	1.00	

TS3-I-180108	18-01-0396-3-E	01/08/18 08:59	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	16	1.0	0.83	1.00	

TS4-I-180108	18-01-0396-4-E	01/08/18 09:20	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	8.4	1.0	0.83	1.00	

Method Blank	099-09-010-8791	N/A	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180108	18-01-0396-1-A	01/08/18 08:34	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.82	0.01	0.01	1.00	BV,BU

TS2-I-180108	18-01-0396-2-A	01/08/18 09:44	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.31	0.01	0.01	1.00	BV,BU

TS3-I-180108	18-01-0396-3-A	01/08/18 08:59	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.64	0.01	0.01	1.00	BV,BU

TS4-I-180108	18-01-0396-4-A	01/08/18 09:20	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.61	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180108	18-01-0396-1-B	01/08/18 08:34	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:29	180111LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0444	0.0100	0.00140	10.0	
Lead	0.190	0.0100	0.000898	10.0	
Zinc	0.469	0.0500	0.00479	10.0	
Aluminum	5.54	0.500	0.0331	10.0	
Iron	10.4	0.500	0.0926	10.0	

TS2-I-180108	18-01-0396-2-B	01/08/18 09:44	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:32	180111LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0234	0.0100	0.00140	10.0	
Lead	0.0727	0.0100	0.000898	10.0	
Zinc	0.271	0.0500	0.00479	10.0	
Aluminum	0.767	0.500	0.0331	10.0	
Iron	2.55	0.500	0.0926	10.0	

TS3-I-180108	18-01-0396-3-B	01/08/18 08:59	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:35	180111LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00716	0.00100	0.000140	1.00	
Lead	0.0420	0.00100	0.0000898	1.00	
Zinc	0.100	0.00500	0.000479	1.00	
Aluminum	0.301	0.0500	0.00331	1.00	
Iron	0.621	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-I-180108	18-01-0396-4-B	01/08/18 09:20	Aqueous	ICP/MS 03	01/12/18	01/12/18 20:37	180111LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00371	0.00100	0.000140	1.00	
Lead	0.0120	0.00100	0.0000898	1.00	
Zinc	0.0513	0.00500	0.000479	1.00	
Aluminum	0.236	0.0500	0.00331	1.00	
Iron	0.262	0.0500	0.00926	1.00	

Method Blank	099-16-094-2157	N/A	Aqueous	ICP/MS 03	01/11/18	01/11/18 19:50	180111LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-01-0397-1	Sample	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2
18-01-0397-1	Matrix Spike	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2
18-01-0397-1	Matrix Spike Duplicate	Aqueous	N/A	01/13/18	01/13/18 16:25	I0113HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	1.000	20.00	16.30	76	16.50	78	64-132	1	0-34	

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: TR
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-01-0496-2	Sample	Aqueous	ICP/MS 03	01/11/18	01/11/18 21:18	180111SA2A
18-01-0496-2	Matrix Spike	Aqueous	ICP/MS 03	01/11/18	01/11/18 20:38	180111SA2A
18-01-0496-2	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/11/18	01/11/18 21:16	180111SA2A

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.01530	0.1000	0.1201	105	0.1205	105	80-120	0	0-20	
Lead	0.007794	0.1000	0.09691	89	0.09752	90	80-120	1	0-20	
Zinc	0.1196	0.1000	0.2452	126	0.2466	127	80-120	1	0-20	3
Aluminum	0.6000	0.1000	0.7304	4X	0.7594	4X	80-120	4X	0-20	Q
Iron	0.3487	5.100	5.613	103	5.637	104	80-120	0	0-20	

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RPD: Relative Percent Difference. CL: Control Limits

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-0391-1	Sample	Aqueous	N/A	01/10/18 00:00	01/10/18 19:00	I0110TSSD7
18-01-0391-1	Sample Duplicate	Aqueous	N/A	01/10/18 00:00	01/10/18 19:00	I0110TSSD7

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Suspended	287.5	270.0	6	0-20	

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-0397-1	Sample	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1
18-01-0397-1	Sample Duplicate	Aqueous	PH 1	N/A	01/09/18 17:00	I0109PHD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	7.930	7.800	2	0-25	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-80	LCS	Aqueous		N/A	01/13/18	01/13/18 16:25	I0113HEML2			
099-16-927-80	LCSD	Aqueous		N/A	01/13/18	01/13/18 16:25	I0113HEML2			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	17.90		90	17.80	89	64-132	1	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8791	LCS	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4			
099-09-010-8791	LCSD	Aqueous	N/A	01/10/18	01/10/18 19:00	I0110TSSL4			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	94.00	94	90.00	90	80-120	4	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/09/18
Work Order: 18-01-0396
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-003-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2157	LCS	Aqueous	ICP/MS 03	01/11/18	01/11/18 19:52	180111LA2
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.1008	101	80-120	
Lead		0.1000	0.1058	106	80-120	
Zinc		0.1000	0.1014	101	80-120	
Aluminum		0.1000	0.09445	94	80-120	
Iron		5.100	5.196	102	80-120	

Sample Analysis Summary Report

Work Order: 18-01-0396

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1009	N/A	1
SM 4500 H+ B	N/A	1086	PH 1	1


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Qualifiers	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDS or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables and the original chain-of-custody form to:
 sab@cdlimengineering.com
 mec@cdlimengineering.com

GeoTracker EDF required? ☐ Yes ☒ No

Equis 4-file EDWEDD required? ☒ Yes ☐ No

Specify analytic/prep method and detection limit in report.

Notify us of any anomalous peaks in GC or other scans.

Call immediately with any questions or problems.

Protocol ID/path:

Client Contact		Project Manager: Scott Bourne		Protocol ID/path:	
CDIM ENGINEERING		Project ID: 101-002 LRTC, Task 1		COC Number:	
45 POLK STREET, 3RD FLOOR		Sampled by: L2/MEC		Page 1 of 1	
SAN FRANCISCO, CA		Sample date(s): 1/2/18		SDG number:	
(415) 498-0535		PHONE			
Job Name: LRTC Annual Storm Water Sampling		Standard			
Address: 402 Wright Avenue, Richmond, CA 94804		(Specify Days or Hours)			
Lab ID	Sample Identification	Sample Date	Sample Time	Sample Matrix	# of Cont.
1	TS1-I-180108	1/2/18	0834	W	5
2	TS2-I-180108		0944		5
3	TS3-I-180108		0859		5
4	TS4-I-180108		0920		5
Field Filtered (X):					
Preservation Used: 1= Ice, 2= HCl; 3= H ₂ SO ₄ ; 4=HNO ₃ ; 5=NaOH; 6= Other					
Special Instructions/QC Requirements & Comments: Level II Report. Report with reporting limit and method detection limit. Analyze and report only the metals listed above.					

Relinquished by: <i>Mary Cunningham</i>	Company:	CDIM	Date/Time:	1/8/18 1335	Received by:	<i>[Signature]</i>	Company:	ECI	Date/Time:	1/8/18 1335
	Relinquished by:		Date/Time:	1/8/18 1730	Received by:	<i>[Signature]</i>	Company:	ECI	Date/Time:	1/8/18 1335
Relinquished by:		Date/Time:			Received by:	<i>[Signature]</i>	Company:	ECI	Date/Time:	1/8/18 1100

x = Samples released to a secured, locked area.

x = Samples released to a secured, locked area.

● = Samples received from a secured, locked area



800-322-5555
www.gso.com

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 539012919

NPS

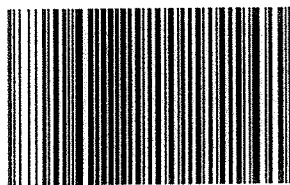


Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
A
GARDEN GROVE

COD: \$0.00
Weight: 0 lb(s)
Reference:
CDIM
Delivery Instructions:

D92845A



77629636

Signature Type: STANDARD

Print Date: 1/8/2018 2:15 PM

Package 2 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

0396

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDIM

DATE: 01/09/2018
TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 1.8 °C (w/ CF): 2.0 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: IS
CUSTODY SEAL:

Cooler ☒ Present and Intact

☐ Present but Not Intact

☐ Not Present

☐ N/A

Checked by: IS

Sample(s) ☐ Present and Intact

☐ Present but Not Intact

☒ Not Present

☐ N/A

Checked by: 1050
SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/A

COC document(s) received complete ☒ Yes ☐ No ☐ N/A

☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers

☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished time

Sampler's name indicated on COC ☒ Yes ☐ No ☐ N/A

Sample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/A

Sample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/A

Proper containers for analyses requested ☒ Yes ☐ No ☐ N/A

Sufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/A

Samples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☒ No ☒ N/A

Proper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved Metals

Acid/base preserved samples - pH within acceptable range ☒ Yes ☐ No ☐ N/A

Container(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A

☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)

☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)

Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna₂ ☐ 100PJ ☐ 100PJna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 125PB ☐ 125PBznna (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☒ 250PB ☒ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGBna₂ ☐ 1AGBs (pH__2) ☒ 1AGBs (O&G) ☒ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1050

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 778



January 30, 2018

Vista Work Order No. 1800038

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 09, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-003-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800038**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800038-01	TS2-E-180108	08-Jan-18 09:31	09-Jan-18 09:46	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BLK1				
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 23-Jan-18 21:32 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
Hexachlorobenzene	5.23			J	IS 13C6-Hexachlorobenzene	45.9	5 - 120		
alpha-BHC	ND	2.59			IS 13C6-alpha-BHC	74.7	32 - 130		
Lindane (gamma-BHC)	ND	3.11			IS 13C6-Lindane (gamma-BHC)	86.8	11 - 120		
beta-BHC	ND	3.29			IS 13C6-beta-BHC	87.8	32 - 130		
delta-BHC	ND	2.58			IS 13C6-delta-BHC	88.3	36 - 137		
Heptachlor	ND	0.879			IS 13C10-Heptachlor	70.6	5 - 120		
Aldrin	ND	1.55			IS 13C12-Aldrin	71.7	5 - 120		
Oxychlordane	ND	4.30			IS 13C10-Oxychlordane	83.4	23 - 135		
cis-Heptachlor Epoxide	ND	3.39			IS 13C10-cis-Heptachlor Epoxide	86.6	27 - 137		
trans-Heptachlor Epoxide	ND	10.5			IS 13C10-trans-Chlordane (gamma)	91.0	21 - 132		
trans-Chlordane (gamma)	ND	4.23			IS 13C10-trans-Nonachlor	84.7	14 - 136		
trans-Nonachlor	ND	4.36			IS 13C9-Endosulfan I (alpha)	82.8	15 - 148		
cis-Chlordane (alpha)	ND	4.27			IS 13C12-2,4'-DDE	84.6	47 - 160		
Endosulfan I (alpha)	ND	5.32			IS 13C12-4,4'-DDE	86.2	47 - 160		
2,4'-DDE	ND	3.11			IS 13C12-Dieldrin	93.1	40 - 151		
4,4'-DDE	ND	3.79			IS 13C12-Endrin	104	35 - 155		
Dieldrin	ND	2.36			IS 13C10-cis-Nonachlor	87.6	36 - 139		
Endrin	ND	3.17			IS 13C9-Endosulfan II (beta)	96.8	5 - 122		
cis-Nonachlor	ND	4.84			IS 13C12-2,4'-DDD	95.1	5 - 199		
Endosulfan II (beta)	ND	6.71			IS 13C12-2,4'-DDT	86.1	5 - 199		
2,4'-DDD	ND	3.78			IS 13C12-4,4'-DDD	95.1	5 - 120		
2,4'-DDT	ND	5.33			IS 13C12-4,4'-DDT	87.8	5 - 120		
4,4'-DDD	ND	3.91			IS 13C9-Endosulfan Sulfate	89.9	15 - 148		
4,4'-DDT	ND	6.23			IS 13C12-Methoxychlor	87.4	5 - 120		
Endosulfan Sulfate	ND	5.53			IS 13C10-Mirex	82.5	5 - 120		
4,4'-Methoxychlor	ND	2.82			IS 13C12-Endrin Aldehyde	56.7	15 - 148		
Mirex	ND	1.20			IS 13C12-Endrin Ketone	90.6	15 - 148		
Endrin Aldehyde	ND	4.06							
Endrin Ketone	ND	5.28							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BS1			
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 24-Jan-18 18:03 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	1010	1000	101	50 - 120	IS	13C6-Hexachlorobenzene	42.8	5 - 120
alpha-BHC	991	1000	99.1	50 - 120	IS	13C6-alpha-BHC	76.7	17 - 141
Lindane (gamma-BHC)	989	1000	98.9	50 - 120	IS	13C6-Lindane (gamma-BHC)	87.2	5 - 124
beta-BHC	966	1000	96.6	50 - 120	IS	13C6-beta-BHC	95.0	17 - 141
delta-BHC	974	1000	97.4	50 - 120	IS	13C6-delta-BHC	94.0	16 - 150
Heptachlor	974	1000	97.4	50 - 120	IS	13C10-Heptachlor	77.8	5 - 128
Aldrin	996	1000	99.6	50 - 120	IS	13C12-Aldrin	66.2	5 - 126
Oxychlordane	842	1000	84.2	50 - 120	IS	13C10-Oxychlordane	88.2	5 - 144
cis-Heptachlor Epoxide	968	1000	96.8	50 - 120	IS	13C10-cis-Heptachlor Epoxide	92.3	8 - 146
trans-Heptachlor Epoxide	1010	1000	101	50 - 120	IS	13C10-trans-Chlordane (gamma)	77.9	15 - 144
trans-Chlordane (gamma)	1080	1000	108	50 - 120	IS	13C10-trans-Nonachlor	85.9	13 - 149
trans-Nonachlor	932	1000	93.2	50 - 120	IS	13C9-Endosulfan I (alpha)	78.8	5 - 144
cis-Chlordane (alpha)	876	1000	87.6	50 - 120	IS	13C12-2,4'-DDE	74.1	26 - 169
Endosulfan I (alpha)	982	1000	98.2	50 - 120	IS	13C12-4,4'-DDE	83.5	26 - 169
2,4'-DDE	1030	1000	103	24 - 123	IS	13C12-Dieldrin	84.1	19 - 161
4,4'-DDE	993	1000	99.3	50 - 120	IS	13C12-Endrin	97.3	20 - 157
Dieldrin	948	1000	94.8	50 - 120	IS	13C10-cis-Nonachlor	88.1	17 - 154
Endrin	1020	1000	102	50 - 120	IS	13C9-Endosulfan II (beta)	87.5	5 - 120
cis-Nonachlor	900	1000	90.0	50 - 120	IS	13C12-2,4'-DDD	95.7	14 - 200
Endosulfan II (beta)	1040	1000	104	5 - 200	IS	13C12-2,4'-DDT	94.5	14 - 200
2,4'-DDD	1040	1000	104	50 - 120	IS	13C12-4,4'-DDD	96.4	14 - 200
2,4'-DDT	1030	1000	103	50 - 120	IS	13C12-4,4'-DDT	104	13 - 200
4,4'-DDD	1000	1000	100	42 - 120	IS	13C9-Endosulfan Sulfate	79.6	5 - 144
4,4'-DDT	1020	1000	102	50 - 120	IS	13C12-Methoxychlor	100	8 - 200
Endosulfan Sulfate	942	1000	94.2	50 - 120	IS	13C10-Mirex	88.9	5 - 138
4,4'-Methoxychlor	1010	1000	101	50 - 120	IS	13C12-Endrin Aldehyde	45.6	5 - 144
Mirex	980	1000	98.0	50 - 120	IS	13C12-Endrin Ketone	88.2	5 - 144
Endrin Aldehyde	932	1000	93.2	50 - 134				
Endrin Ketone	921	1000	92.1	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-E-180108					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800038-01	Date Received:	09-Jan-2018 9:46
Project:	101-003-LRTC, Task 1		Sample Size:	1.04 L	QC Batch:	B8A0064	Date Extracted:	11-Jan-2018 11:39
Date Collected:	08-Jan-2018 9:31				Date Analyzed:	24-Jan-18 21:18 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	14.9			J, B	IS 13C6-Hexachlorobenzene	59.8	5 - 120	
alpha-BHC	42.8				IS 13C6-alpha-BHC	83.7	32 - 130	
Lindane (gamma-BHC)	71.5				IS 13C6-Lindane (gamma-BHC)	93.7	11 - 120	
beta-BHC	37.3			J	IS 13C6-beta-BHC	99.8	32 - 130	
delta-BHC	4.32			J	IS 13C6-delta-BHC	98.4	36 - 137	
Heptachlor	ND	1.56			IS 13C10-Heptachlor	86.8	5 - 120	
Aldrin	ND	4.99			IS 13C12-Aldrin	70.5	5 - 120	
Oxychlordane	ND	13.2			IS 13C10-Oxychlordane	85.6	23 - 135	
cis-Heptachlor Epoxide	ND		35.9		IS 13C10-cis-Heptachlor Epoxide	95.7	27 - 137	
trans-Heptachlor Epoxide	ND		101		IS 13C10-trans-Chlordane (gamma)	89.2	21 - 132	
trans-Chlordane (gamma)	42.6				IS 13C10-trans-Nonachlor	93.6	14 - 136	
trans-Nonachlor	ND	11.4			IS 13C9-Endosulfan I (alpha)	80.4	15 - 148	
cis-Chlordane (alpha)	59.7				IS 13C12-2,4'-DDE	74.3	47 - 160	
Endosulfan I (alpha)	ND	18.4			IS 13C12-4,4'-DDE	86.7	47 - 160	
2,4'-DDE	ND	2.13			IS 13C12-Dieldrin	84.0	40 - 151	
4,4'-DDE	55.5				IS 13C12-Endrin	107	35 - 155	
Dieldrin	1010				IS 13C10-cis-Nonachlor	93.6	36 - 139	
Endrin	398				IS 13C9-Endosulfan II (beta)	88.5	5 - 122	
cis-Nonachlor	ND	9.98			IS 13C12-2,4'-DDD	102	5 - 199	
Endosulfan II (beta)	ND	17.1			IS 13C12-2,4'-DDT	103	5 - 199	
2,4'-DDD	73.2				IS 13C12-4,4'-DDD	102	5 - 120	
2,4'-DDT	38.8				IS 13C12-4,4'-DDT	112	5 - 120	
4,4'-DDD	99.7				IS 13C9-Endosulfan Sulfate	94.7	15 - 148	
4,4'-DDT	95.9				IS 13C12-Methoxychlor	111	5 - 120	
Endosulfan Sulfate	ND	7.44			IS 13C10-Mirex	90.5	5 - 120	
4,4'-Methoxychlor	ND	2.73			IS 13C12-Endrin Aldehyde	69.4	15 - 148	
Mirex	ND	0.725			IS 13C12-Endrin Ketone	97.2	15 - 148	
Endrin Aldehyde	ND	2.90						
Endrin Ketone	425							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Chain of Custody Record

Please send analytic results, electronic deliverables and the original chain-of-custody form to:
 sab@cdimengineering.com
 mec@cdimengineering.com

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

● = Samples received from a secured, locked area

Sample Log-in Checklist

 Vista Work Order #: 1800038 TAT std

Samples Arrival:	Date/Time 01/9/18 0946	Initials: WWS	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 1/9/18 1317	Initials: WWS	Location: WR-2 Shelf/Rack: C-3
Delivered By:	<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> On Trac <input type="checkbox"/> GSO <input type="checkbox"/> DHL <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Other		
Preservation:	<input checked="" type="checkbox"/> Ice <input type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None		
Temp °C: 4.6 (uncorrected)	Time: 0957	Thermometer ID: IR-4	
Temp °C: 4.5 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # 7892 6653 6660	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
Preservation Documented:	<input type="checkbox"/> Na ₂ S ₂ O ₃ <input type="checkbox"/> Trizma <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA			
Shipping Container	<input checked="" type="checkbox"/> Vista <input type="checkbox"/> Client <input checked="" type="checkbox"/> Retain <input type="checkbox"/> Return <input type="checkbox"/> Dispose			

Comments:



January 31, 2018

Vista Work Order No. 1800039

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 09, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-003-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800039**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800039-01	TS2-I-180108	EPA Method 1699	13C6-Lindane (gamma-BHC)	H	122
1800039-01	TS2-I-180108	EPA Method 1699	13C12-2,4'-DDE	H	31.0
1800039-01	TS2-I-180108	EPA Method 1699	13C12-4,4'-DDE	H	23.7
1800039-01	TS2-I-180108	EPA Method 1699	13C12-Dieldrin	H	35.9
1800039-01	TS2-I-180108	EPA Method 1699	13C12-Endrin	H	32.5
1800039-01	TS2-I-180108	EPA Method 1699	13C10-cis-Nonachlor	H	23.2
1800039-01	TS2-I-180108	EPA Method 1699	13C12-Endrin Aldehyde	H	11.7
1800039-01	TS2-I-180108	EPA Method 1699	13C12-Endrin Ketone	H	11.2

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800039-01	TS2-I-180108	08-Jan-18 09:44	09-Jan-18 09:46	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BLK1				
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 23-Jan-18 21:32 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
Hexachlorobenzene	5.23			J	IS 13C6-Hexachlorobenzene	45.9	5 - 120		
alpha-BHC	ND	2.59			IS 13C6-alpha-BHC	74.7	32 - 130		
Lindane (gamma-BHC)	ND	3.11			IS 13C6-Lindane (gamma-BHC)	86.8	11 - 120		
beta-BHC	ND	3.29			IS 13C6-beta-BHC	87.8	32 - 130		
delta-BHC	ND	2.58			IS 13C6-delta-BHC	88.3	36 - 137		
Heptachlor	ND	0.879			IS 13C10-Heptachlor	70.6	5 - 120		
Aldrin	ND	1.55			IS 13C12-Aldrin	71.7	5 - 120		
Oxychlordane	ND	4.30			IS 13C10-Oxychlordane	83.4	23 - 135		
cis-Heptachlor Epoxide	ND	3.39			IS 13C10-cis-Heptachlor Epoxide	86.6	27 - 137		
trans-Heptachlor Epoxide	ND	10.5			IS 13C10-trans-Chlordane (gamma)	91.0	21 - 132		
trans-Chlordane (gamma)	ND	4.23			IS 13C10-trans-Nonachlor	84.7	14 - 136		
trans-Nonachlor	ND	4.36			IS 13C9-Endosulfan I (alpha)	82.8	15 - 148		
cis-Chlordane (alpha)	ND	4.27			IS 13C12-2,4'-DDE	84.6	47 - 160		
Endosulfan I (alpha)	ND	5.32			IS 13C12-4,4'-DDE	86.2	47 - 160		
2,4'-DDE	ND	3.11			IS 13C12-Dieldrin	93.1	40 - 151		
4,4'-DDE	ND	3.79			IS 13C12-Endrin	104	35 - 155		
Dieldrin	ND	2.36			IS 13C10-cis-Nonachlor	87.6	36 - 139		
Endrin	ND	3.17			IS 13C9-Endosulfan II (beta)	96.8	5 - 122		
cis-Nonachlor	ND	4.84			IS 13C12-2,4'-DDD	95.1	5 - 199		
Endosulfan II (beta)	ND	6.71			IS 13C12-2,4'-DDT	86.1	5 - 199		
2,4'-DDD	ND	3.78			IS 13C12-4,4'-DDD	95.1	5 - 120		
2,4'-DDT	ND	5.33			IS 13C12-4,4'-DDT	87.8	5 - 120		
4,4'-DDD	ND	3.91			IS 13C9-Endosulfan Sulfate	89.9	15 - 148		
4,4'-DDT	ND	6.23			IS 13C12-Methoxychlor	87.4	5 - 120		
Endosulfan Sulfate	ND	5.53			IS 13C10-Mirex	82.5	5 - 120		
4,4'-Methoxychlor	ND	2.82			IS 13C12-Endrin Aldehyde	56.7	15 - 148		
Mirex	ND	1.20			IS 13C12-Endrin Ketone	90.6	15 - 148		
Endrin Aldehyde	ND	4.06							
Endrin Ketone	ND	5.28							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8A0064			Lab Sample: B8A0064-BS1			
Sample Size: 1.00 L		Date Extracted: 11-Jan-2018 11:39			Date Analyzed: 24-Jan-18 18:03 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	1010	1000	101	50 - 120	IS	13C6-Hexachlorobenzene	42.8	5 - 120
alpha-BHC	991	1000	99.1	50 - 120	IS	13C6-alpha-BHC	76.7	17 - 141
Lindane (gamma-BHC)	989	1000	98.9	50 - 120	IS	13C6-Lindane (gamma-BHC)	87.2	5 - 124
beta-BHC	966	1000	96.6	50 - 120	IS	13C6-beta-BHC	95.0	17 - 141
delta-BHC	974	1000	97.4	50 - 120	IS	13C6-delta-BHC	94.0	16 - 150
Heptachlor	974	1000	97.4	50 - 120	IS	13C10-Heptachlor	77.8	5 - 128
Aldrin	996	1000	99.6	50 - 120	IS	13C12-Aldrin	66.2	5 - 126
Oxychlordane	842	1000	84.2	50 - 120	IS	13C10-Oxychlordane	88.2	5 - 144
cis-Heptachlor Epoxide	968	1000	96.8	50 - 120	IS	13C10-cis-Heptachlor Epoxide	92.3	8 - 146
trans-Heptachlor Epoxide	1010	1000	101	50 - 120	IS	13C10-trans-Chlordane (gamma)	77.9	15 - 144
trans-Chlordane (gamma)	1080	1000	108	50 - 120	IS	13C10-trans-Nonachlor	85.9	13 - 149
trans-Nonachlor	932	1000	93.2	50 - 120	IS	13C9-Endosulfan I (alpha)	78.8	5 - 144
cis-Chlordane (alpha)	876	1000	87.6	50 - 120	IS	13C12-2,4'-DDE	74.1	26 - 169
Endosulfan I (alpha)	982	1000	98.2	50 - 120	IS	13C12-4,4'-DDE	83.5	26 - 169
2,4'-DDE	1030	1000	103	24 - 123	IS	13C12-Dieldrin	84.1	19 - 161
4,4'-DDE	993	1000	99.3	50 - 120	IS	13C12-Endrin	97.3	20 - 157
Dieldrin	948	1000	94.8	50 - 120	IS	13C10-cis-Nonachlor	88.1	17 - 154
Endrin	1020	1000	102	50 - 120	IS	13C9-Endosulfan II (beta)	87.5	5 - 120
cis-Nonachlor	900	1000	90.0	50 - 120	IS	13C12-2,4'-DDD	95.7	14 - 200
Endosulfan II (beta)	1040	1000	104	5 - 200	IS	13C12-2,4'-DDT	94.5	14 - 200
2,4'-DDD	1040	1000	104	50 - 120	IS	13C12-4,4'-DDD	96.4	14 - 200
2,4'-DDT	1030	1000	103	50 - 120	IS	13C12-4,4'-DDT	104	13 - 200
4,4'-DDD	1000	1000	100	42 - 120	IS	13C9-Endosulfan Sulfate	79.6	5 - 144
4,4'-DDT	1020	1000	102	50 - 120	IS	13C12-Methoxychlor	100	8 - 200
Endosulfan Sulfate	942	1000	94.2	50 - 120	IS	13C10-Mirex	88.9	5 - 138
4,4'-Methoxychlor	1010	1000	101	50 - 120	IS	13C12-Endrin Aldehyde	45.6	5 - 144
Mirex	980	1000	98.0	50 - 120	IS	13C12-Endrin Ketone	88.2	5 - 144
Endrin Aldehyde	932	1000	93.2	50 - 134				
Endrin Ketone	921	1000	92.1	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-I-180108					EPA Method 1699				
Client Data			Sample Data		Laboratory Data				
Name: CDIM Engineering			Matrix: Water		Lab Sample: 1800039-01		Date Received: 09-Jan-2018 9:46		
Project: 101-003-LRTC, Task 1			Sample Size: 1.04 L		QC Batch: B8A0064		Date Extracted: 11-Jan-2018 11:39		
Date Collected: 08-Jan-2018 9:44					Date Analyzed: 24-Jan-18 22:07 Column: ZB-50				
					30-Jan-18 14:53 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
Hexachlorobenzene	1070			B	IS	13C6-Hexachlorobenzene	89.4	5 - 120	
alpha-BHC	63.2				IS	13C6-alpha-BHC	84.3	32 - 130	
Lindane (gamma-BHC)	66.3				IS	13C6-Lindane (gamma-BHC)	122	11 - 120	H
beta-BHC	ND		62.3		IS	13C6-beta-BHC	60.6	32 - 130	
delta-BHC	ND	16.6			IS	13C6-delta-BHC	65.0	36 - 137	
Heptachlor	68.3				IS	13C10-Heptachlor	67.7	5 - 120	
Aldrin	82.1				IS	13C12-Aldrin	44.4	5 - 120	
Oxychlordane	ND	99.7			IS	13C10-Oxychlordane	41.6	23 - 135	
cis-Heptachlor Epoxide	ND		120		IS	13C10-cis-Heptachlor Epoxide	39.0	27 - 137	
trans-Heptachlor Epoxide	ND	245			IS	13C10-trans-Chlordane (gamma)	24.6	21 - 132	
trans-Chlordane (gamma)	1060				IS	13C10-trans-Nonachlor	32.1	14 - 136	
trans-Nonachlor	ND		491		IS	13C9-Endosulfan I (alpha)	79.7	15 - 148	D
cis-Chlordane (alpha)	991				IS	13C12-2,4'-DDE	31.0	47 - 160	H
Endosulfan I (alpha)	ND	100		D	IS	13C12-4,4'-DDE	23.7	47 - 160	H
2,4'-DDE	961				IS	13C12-Dieldrin	35.9	40 - 151	H
4,4'-DDE	17000				IS	13C12-Endrin	32.5	35 - 155	H
Dieldrin	3070				IS	13C10-cis-Nonachlor	23.2	36 - 139	H
Endrin	1360				IS	13C9-Endosulfan II (beta)	18.4	5 - 122	
cis-Nonachlor	ND	172			IS	13C12-2,4'-DDD	33.3	5 - 199	
Endosulfan II (beta)	ND	250			IS	13C12-2,4'-DDT	26.1	5 - 199	
2,4'-DDD	5090				IS	13C12-4,4'-DDD	21.1	5 - 120	
2,4'-DDT	9460				IS	13C12-4,4'-DDT	27.4	5 - 120	D
4,4'-DDD	12400				IS	13C9-Endosulfan Sulfate	42.9	15 - 148	D
4,4'-DDT	26600			D	IS	13C12-Methoxychlor	14.8	5 - 120	
Endosulfan Sulfate	ND	382		D	IS	13C10-Mirex	17.8	5 - 120	
4,4'-Methoxychlor	ND	1120			IS	13C12-Endrin Aldehyde	11.7	15 - 148	H
Mirex	ND	98.6			IS	13C12-Endrin Ketone	11.2	15 - 148	H
Endrin Aldehyde	ND	565							
Endrin Ketone	ND	1260							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Chain of Custody Record

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

● = Samples received from a secured, locked area

Sample Log-in Checklist

 Vista Work Order #: 1800039 TAT std

Samples Arrival:	Date/Time <u>01/9/18 0946</u>	Initials: <u>WWS</u>	Location: <u>WR-2</u> Shelf/Rack: <u>N/A</u>
Logged In:	Date/Time <u>1/9/18 1332</u>	Initials: <u>WWS</u>	Location: <u>WR-2</u> Shelf/Rack: <u>C-3</u>
Delivered By:	<input checked="" type="radio"/> FedEx <input type="radio"/> UPS <input type="radio"/> On Trac <input type="radio"/> GSO <input type="radio"/> DHL <input type="radio"/> Hand Delivered <input type="radio"/> Other		
Preservation:	<input checked="" type="radio"/> Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice <input type="radio"/> None		
Temp °C: <u>4.6</u> (uncorrected)	Time: <u>0957</u>	Thermometer ID: IR-4	
Temp °C: <u>4.5</u> (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	Trk # <u>7892 6653 6660</u>	✓	
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented:	<input type="radio"/> Na ₂ S ₂ O ₃ <input type="radio"/> Trizma <input checked="" type="radio"/> None <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA		
Shipping Container	<input checked="" type="radio"/> Vista <input type="radio"/> Client <input checked="" type="radio"/> Retain <input type="radio"/> Return <input type="radio"/> Dispose		

Comments:



Supplemental Report 1

The original report has been
revised/corrected.

**WORK ORDER NUMBER: 18-01-1557**

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For**Client:** CDIM Engineering**Client Project Name:** LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Attention: Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a hand-drawn oval.

Approved for release on 02/05/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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 Work Order Number: 18-01-1557

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Work Order Narrative

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/23/18. They were assigned to Work Order 18-01-1557.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-1557
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-002-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/23/18 10:30
	Number of Containers: 28

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-E-180122	18-01-1557-1	01/22/18 08:25	9	Aqueous
TS2-E-180122	18-01-1557-2	01/22/18 08:50	5	Aqueous
TS3-E-180122	18-01-1557-3	01/22/18 09:25	5	Aqueous
TS4-E-180122	18-01-1557-4	01/22/18 09:35	4	Aqueous
TSX-E-DUP-180122	18-01-1557-5	01/22/18 08:25	5	Aqueous



Calscience

QC Association Summary

Work Order: 18-01-1557

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<u>Client Sample ID</u>	<u>Method Name</u>	<u>Type</u>	<u>Ext Name</u>	<u>Instrument</u>	<u>MS/MSD/SDP</u>	<u>LCS/LCSD</u>
TS1-E-180122	EPA 1664A HEM-SGT: Oil and Grease		N/A	N/A	I0125HEMS2	I0125HEML2
TS1-E-180122	EPA 200.8 ICP/MS Metals		N/A	ICP/MS 03	180129SA6	180129LA6
TS1-E-180122	SM 2540 D Total Suspended Solids		N/A	N/A	I0124TSSD1	I0124TSSL1
TS1-E-180122	SM 4500 H+ B pH		N/A	PH 1	I0123PHD1	
TS2-E-180122	EPA 1664A HEM-SGT: Oil and Grease		N/A	N/A	I0125HEMS2	I0125HEML2
TS2-E-180122	EPA 200.8 ICP/MS Metals		N/A	ICP/MS 03	180129SA6	180129LA6
TS2-E-180122	SM 2540 D Total Suspended Solids		N/A	N/A	I0124TSSD1	I0124TSSL1
TS2-E-180122	SM 4500 H+ B pH		N/A	PH 1	I0123PHD1	
TS3-E-180122	EPA 1664A HEM-SGT: Oil and Grease		N/A	N/A	I0125HEMS2	I0125HEML2
TS3-E-180122	EPA 200.8 ICP/MS Metals		N/A	ICP/MS 03	180129SA6	180129LA6
TS3-E-180122	SM 2540 D Total Suspended Solids		N/A	N/A	I0124TSSD1	I0124TSSL1
TS3-E-180122	SM 4500 H+ B pH		N/A	PH 1	I0123PHD1	
TS4-E-180122	EPA 1664A HEM-SGT: Oil and Grease		N/A	N/A	I0125HEMS2	I0125HEML2
TS4-E-180122	EPA 200.8 ICP/MS Metals		N/A	ICP/MS 03	180129SA6	180129LA6
TS4-E-180122	EPA 200.8 ICP/MS Metals	R	N/A	ICP/MS 03	180129SA6	180129LA6
TS4-E-180122	SM 2540 D Total Suspended Solids		N/A	N/A	I0124TSSD1	I0124TSSL1
TS4-E-180122	SM 4500 H+ B pH		N/A	PH 1	I0123PHD1	
TSX-E-DUP-180122	EPA 1664A HEM-SGT: Oil and Grease		N/A	N/A	I0125HEMS2	I0125HEML2
TSX-E-DUP-180122	EPA 200.8 ICP/MS Metals		N/A	ICP/MS 03	180129SA6	180129LA6
TSX-E-DUP-180122	SM 2540 D Total Suspended Solids		N/A	N/A	I0124TSSD1	I0124TSSL1
TSX-E-DUP-180122	SM 4500 H+ B pH		N/A	PH 1	I0123PHD1	

Return to Contents

R = Rerun

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-1557
Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
Received: 01/23/18

Attn: Scott Bourne

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Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-E-180122 (18-01-1557-1)						
Copper	0.00116		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000819	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0765		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0284	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0384	J	0.00926*	mg/L	EPA 200.8	N/A
pH	8.91	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-E-180122 (18-01-1557-2)						
Copper	0.00235		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000999	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0572		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0170	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0326	J	0.00926*	mg/L	EPA 200.8	N/A
pH	8.42	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-E-180122 (18-01-1557-3)						
Copper	0.00164		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00114		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0595		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0121	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0150	J	0.00926*	mg/L	EPA 200.8	N/A
Solids, Total Suspended	1.2		1.0	mg/L	SM 2540 D	N/A
pH	8.33	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-E-180122 (18-01-1557-4)						
Copper	0.00377		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0511		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0209	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0867		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	8.2		1.0	mg/L	SM 2540 D	N/A
pH	7.65	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TSX-E-DUP-180122 (18-01-1557-5)						
Copper	0.00275		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000959	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0630		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0171	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0292	J	0.00926*	mg/L	EPA 200.8	N/A
pH	8.31	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-01-1557
Project Name: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1
Received: 01/23/18

Attn: Scott Bourne

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Client SampleID**Analyte****Result****Qualifiers****RL****Units****Method****Extraction**

Subcontracted analyses, if any, are not included in this summary.


Return to Contents

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180122	18-01-1557-1-F	01/22/18 08:25	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS2-E-180122	18-01-1557-2-C	01/22/18 08:50	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS3-E-180122	18-01-1557-3-C	01/22/18 09:25	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS4-E-180122	18-01-1557-4-C	01/22/18 09:35	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TSX-E-DUP-180122	18-01-1557-5-C	01/22/18 08:25	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-86	N/A	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180122	18-01-1557-1-I	01/22/18 08:25	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS2-E-180122	18-01-1557-2-E	01/22/18 08:50	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS3-E-180122	18-01-1557-3-E	01/22/18 09:25	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	1.2	1.0	0.83	1.00	

TS4-E-180122	18-01-1557-4-D	01/22/18 09:35	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	8.2	1.0	0.83	1.00	

TSX-E-DUP-180122	18-01-1557-5-E	01/22/18 08:25	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

Method Blank	099-09-010-8851	N/A	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180122	18-01-1557-1-A	01/22/18 08:25	Aqueous	PH 1	01/23/18	01/23/18 18:38	I0123PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.91	0.01	0.01	1.00	BV,BU

TS2-E-180122	18-01-1557-2-A	01/22/18 08:50	Aqueous	PH 1	01/23/18	01/23/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.42	0.01	0.01	1.00	BV,BU

TS3-E-180122	18-01-1557-3-A	01/22/18 09:25	Aqueous	PH 1	01/23/18	01/23/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.33	0.01	0.01	1.00	BV,BU

TS4-E-180122	18-01-1557-4-A	01/22/18 09:35	Aqueous	PH 1	01/23/18	01/23/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.65	0.01	0.01	1.00	BV,BU

TSX-E-DUP-180122	18-01-1557-5-A	01/22/18 08:25	Aqueous	PH 1	01/23/18	01/23/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.31	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 01/23/18
 Work Order: 18-01-1557
 Preparation: N/A
 Method: EPA 200.8
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
 LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180122	18-01-1557-1-B	01/22/18 08:25	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:17	180129LA6

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00116	0.00100	0.000140	1.00	
Lead	0.000819	0.00100	0.0000898	1.00	J
Zinc	0.0765	0.00500	0.000479	1.00	
Aluminum	0.0284	0.0500	0.00331	1.00	J
Iron	0.0384	0.0500	0.00926	1.00	J

TS2-E-180122	18-01-1557-2-B	01/22/18 08:50	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:19	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00235	0.00100	0.000140	1.00	
Lead	0.000999	0.00100	0.0000898	1.00	J
Zinc	0.0572	0.00500	0.000479	1.00	
Aluminum	0.0170	0.0500	0.00331	1.00	J
Iron	0.0326	0.0500	0.00926	1.00	J

TS3-E-180122	18-01-1557-3-B	01/22/18 09:25	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:22	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00164	0.00100	0.000140	1.00	
Lead	0.00114	0.00100	0.0000898	1.00	
Zinc	0.0595	0.00500	0.000479	1.00	
Aluminum	0.0121	0.0500	0.00331	1.00	J
Iron	0.0150	0.0500	0.00926	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-E-180122	18-01-1557-4-B	01/22/18 09:35	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:24	180129LA6

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00377	0.00100	0.000140	1.00	
Zinc	0.0511	0.00500	0.000479	1.00	
Aluminum	0.0209	0.0500	0.00331	1.00	J
Iron	0.0867	0.0500	0.00926	1.00	

TS4-E-180122	18-01-1557-4-B	01/22/18 09:35	Aqueous	ICP/MS 03	01/29/18	01/30/18 15:06	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Lead	ND	0.0100	0.000898	10.0	

TSX-E-DUP-180122	18-01-1557-5-B	01/22/18 08:25	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:27	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00275	0.00100	0.000140	1.00	
Lead	0.000959	0.00100	0.0000898	1.00	J
Zinc	0.0630	0.00500	0.000479	1.00	
Aluminum	0.0171	0.0500	0.00331	1.00	J
Iron	0.0292	0.0500	0.00926	1.00	J

Method Blank	099-16-094-2184	N/A	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:07	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180122	Sample	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEMS2
TS1-E-180122	Matrix Spike	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEMS2
TS1-E-180122	Matrix Spike Duplicate	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	20.00	18.10	90	17.80	89	64-132	2	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180122	Sample	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:17	180129SA6
TS1-E-180122	Matrix Spike	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:12	180129SA6
TS1-E-180122	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:14	180129SA6

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.001160	0.1000	0.1044	103	0.1010	100	80-120	3	0-20	
Lead	ND	0.1000	0.1077	108	0.1056	106	80-120	2	0-20	
Zinc	0.07654	0.1000	0.1429	66	0.1512	75	80-120	6	0-20	3
Aluminum	ND	0.1000	0.1259	126	0.1227	123	80-120	3	0-20	3
Iron	ND	5.100	5.435	107	5.135	101	80-120	6	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-1453-2	Sample	Aqueous	N/A	01/24/18 00:00	01/24/18 18:00	I0124TSSD1
18-01-1453-2	Sample Duplicate	Aqueous	N/A	01/24/18 00:00	01/24/18 18:00	I0124TSSD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Suspended	966.0	988.0	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-E-180122	Sample	Aqueous	PH 1	01/23/18 00:00	01/23/18 18:38	I0123PHD1
TS1-E-180122	Sample Duplicate	Aqueous	PH 1	01/23/18 00:00	01/23/18 18:38	I0123PHD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	8.910	8.970	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-86	LCS	Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEML2			
099-16-927-86	LCSD	Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEML2			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	18.10		90	18.50	92	64-132	2	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8851	LCS	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1			
099-09-010-8851	LCSD	Aqueous	N/A	01/24/18	01/24/18 18:00	I0124TSSL1			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	93.00	93	91.00	91	80-120	2	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1557
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2184	LCS	Aqueous	ICP/MS 03	01/29/18	01/30/18 15:24	180129LA6
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.1020	102	80-120	
Lead		0.1000	0.1005	100	80-120	
Zinc		0.1000	0.1037	104	80-120	
Aluminum		0.1000	0.1016	102	80-120	
Iron		5.100	4.854	95	80-120	

Sample Analysis Summary Report

Work Order: 18-01-1557

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1136	N/A	1
SM 4500 H+ B	N/A	1139	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-01-1557

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDS or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables
and the original chain-of-custody form to:
sab@cdimengineering.com
mec@cdimengineering.com

INSTRUCTIONS FOR LAB PERSONNEL:

GeoTracker EDF required? ☐ Yes ☒ No
Equis 4-file EDWEDD required? ☒ Yes ☐ No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

18-01-1557

Client Contact		Project Manager: Scott Bourne		Protocol ID/path:		COC Number:													
CDIM ENGINEERING		Project ID: 101-002-LRTC, Task 1				Page 1 of 1													
45 POLK STREET, 3RD FLOOR		Sampled by: MEC/LZ				SDG number:													
SAN FRANCISCO, CA		Sample date(s): 1/22/18																	
(415) 488-0535		Analysis Turnaround Time:																	
Job Name: LRTC Annual Storm Water Sampling		Sample Time		Sample Matrix		Sample Date		# of Cont.											
Address: Levin Richmond Terminal, 402 Wright Avenue, Richmond, CA 94804		Standard		(Specify Days or Hours)															
Lab ID	Sample Identification	Sample Date	Sample Time	Sample Matrix	# of Cont.	pH (SM 4500HB)	Total Suspended Solids (SM 2540D)	Oil & Grease (EPA 1664A SGT-HEM)	Total Metals- Al, Cu, Fe, Pb, Zn (EPA 200.8 ICP-MS)	Sample Specific Notes:									
1	TS1-E-190122	1/22/18	0825	W	9	X	X	X	X	MS/MSD collect triple sample volume for metals (3 bottles) and double for O&G (4 bottles).									
2	TS2-E-190122		0850		5	X	X	X	X										
3	TS3-E-190122		0925		5	X	X	X	X										
4	TS4-E-190122		0935		54	X	X	X	X										
5	TSX-E-DUP-190122		0925	↓	5	X	X	X	X										
Field Filtered (X):																			
Preservation Used: 1= Ice, 2= HCl; 3= H ₂ SO ₄ ; 4= HNO ₃ ; 5= NaOH; 6= Other																			
Special Instructions/QC Requirements & Comments: Level II Report. Report with reporting limit and method detection limit. Analyze and report only the metals listed above.																			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:														
Mary Cunningham	CDIM Eng	1/22/18 1310	[Signature]	ECT	1/22/18 1310														
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:														
[Signature]	ECT	1/22/18 1730	[Signature]	ECT	1/22/18 1730														
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:														
[Signature]	ECT	1/23/18 1030	[Signature]	ECT	1/23/18 1030														

x = Samples released to a secured, locked area.

x = Samples received from a secured, locked area



800-322-5555
www.gso.com

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 539175691

NPS



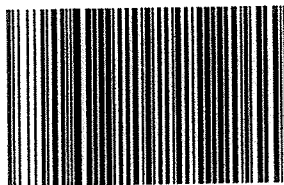
Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

A

COD: \$0.00
Weight: 0 lb(s)
Reference:
CDIM, P66
Delivery Instructions:

D92845A



78283472

Signature Type: STANDARD

Print Date: 1/22/2018 1:24 PM

Package 1 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

1557

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1CLIENT: CDIMDATE: 01/23/2018**TEMPERATURE:** (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.4 °C (w/ CF): 2.6 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ FilterChecked by: IS**CUSTODY SEAL:**Cooler ☒ Present and Intact☐ Present but Not Intact☐ Not Present☐ N/AChecked by: ISSample(s) ☐ Present and Intact☐ Present but Not Intact☒ Not Present☐ N/AChecked by: 1053**SAMPLE CONDITION:**Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☐ No ☐ N/A☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☒ No ☐ N/AProper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☒ Yes ☐ No ☐ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A**CONTAINER TYPE:**

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 125PB ☐ 125PB_z (pH_9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH_2) ☐ 250PB ☒ 250PB_n (pH_2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH_2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH_2) ☒ 1AGB_s (O&G) ☐ 1PB ☐ 1PB_{na} (pH_12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, z_{na} = Zn (CH₃CO₂)₂ + NaOHReviewed by: 1050

**WORK ORDER NUMBER: 18-01-1560***The difference is service*

AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For**Client:** CDIM Engineering**Client Project Name:** LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1**Attention:** Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a hand-drawn oval.

Approved for release on 01/30/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
 Work Order Number: 18-01-1560

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Work Order Narrative

Work Order: 18-01-1560

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/23/18. They were assigned to Work Order 18-01-1560.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Sample Summary

Client: CDIM Engineering	Work Order: 18-01-1560
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-002-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 01/23/18 10:30
	Number of Containers: 19

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-I-180122	18-01-1560-1	01/22/18 08:35	5	Aqueous
TS2-I-180122	18-01-1560-2	01/22/18 08:55	5	Aqueous
TS3-I-180122	18-01-1560-3	01/22/18 09:15	5	Aqueous
TS4-I-180122	18-01-1560-4	01/22/18 09:40	4	Aqueous

Detections Summary

Client: CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Work Order: 18-01-1560
 Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
 Received: 01/23/18

Attn: Scott Bourne

Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-I-180122 (18-01-1560-1)						
HEM - SGT: Oil and Grease	1.6		1.0	mg/L	EPA 1664A	N/A
Copper	0.0131		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0669		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.272		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.736		0.0500	mg/L	EPA 200.8	N/A
Iron	1.55		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	121		1.00	mg/L	SM 2540 D	N/A
pH	8.17	BV	0.01	pH units	SM 4500 H+ B	N/A
TS2-I-180122 (18-01-1560-2)						
HEM - SGT: Oil and Grease	1.6		1.0	mg/L	EPA 1664A	N/A
Copper	0.0143		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0292		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.195		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.530		0.0500	mg/L	EPA 200.8	N/A
Iron	1.65		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	196		1.00	mg/L	SM 2540 D	N/A
pH	7.81	BV	0.01	pH units	SM 4500 H+ B	N/A
TS3-I-180122 (18-01-1560-3)						
HEM - SGT: Oil and Grease	1.1		1.0	mg/L	EPA 1664A	N/A
Copper	0.00984		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0346		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.127		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.535		0.0500	mg/L	EPA 200.8	N/A
Iron	1.19		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	9.1		1.0	mg/L	SM 2540 D	N/A
pH	8.14	BV	0.01	pH units	SM 4500 H+ B	N/A
TS4-I-180122 (18-01-1560-4)						
Copper	0.00440		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00960		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0581		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.175		0.0500	mg/L	EPA 200.8	N/A
Iron	0.330		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	14		1.0	mg/L	SM 2540 D	N/A
pH	7.72	BV	0.01	pH units	SM 4500 H+ B	N/A

Subcontracted analyses, if any, are not included in this summary.

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180122	18-01-1560-1-C	01/22/18 08:35	Aqueous	N/A	01/25/18	01/25/18 14:10	I0125HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	1.6	1.0	0.81	1.00	

TS2-I-180122	18-01-1560-2-C	01/22/18 08:55	Aqueous	N/A	01/25/18	01/25/18 14:10	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	1.6	1.0	0.81	1.00	

TS3-I-180122	18-01-1560-3-C	01/22/18 09:15	Aqueous	N/A	01/25/18	01/25/18 14:10	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	1.1	1.0	0.81	1.00	

TS4-I-180122	18-01-1560-4-C	01/22/18 09:40	Aqueous	N/A	01/25/18	01/25/18 14:10	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-86	N/A	Aqueous	N/A	01/25/18	01/25/18 17:30	I0125HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180122	18-01-1560-1-E	01/22/18 08:35	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	121	1.00	0.829	1.00	

TS2-I-180122	18-01-1560-2-E	01/22/18 08:55	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	196	1.00	0.829	1.00	

TS3-I-180122	18-01-1560-3-E	01/22/18 09:15	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	9.1	1.0	0.83	1.00	

TS4-I-180122	18-01-1560-4-D	01/22/18 09:40	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	14	1.0	0.83	1.00	

Method Blank	099-09-010-8848	N/A	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180122	18-01-1560-1-A	01/22/18 08:35	Aqueous	PH 1	01/22/18	01/22/18 18:38	I0123PHD1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.17	0.01	0.01	1.00	BV

TS2-I-180122	18-01-1560-2-A	01/22/18 08:55	Aqueous	PH 1	01/22/18	01/22/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.81	0.01	0.01	1.00	BV

TS3-I-180122	18-01-1560-3-A	01/22/18 09:15	Aqueous	PH 1	01/22/18	01/22/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	8.14	0.01	0.01	1.00	BV

TS4-I-180122	18-01-1560-4-A	01/22/18 09:40	Aqueous	PH 1	01/22/18	01/22/18 18:38	I0123PHD1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.72	0.01	0.01	1.00	BV



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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180122	18-01-1560-1-B	01/22/18 08:35	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:42	180129LA6

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0131	0.00100	0.000140	1.00	
Lead	0.0669	0.00100	0.0000898	1.00	
Zinc	0.272	0.00500	0.000479	1.00	
Aluminum	0.736	0.0500	0.00331	1.00	
Iron	1.55	0.0500	0.00926	1.00	

TS2-I-180122	18-01-1560-2-B	01/22/18 08:55	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:45	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0143	0.00100	0.000140	1.00	
Lead	0.0292	0.00100	0.0000898	1.00	
Zinc	0.195	0.00500	0.000479	1.00	
Aluminum	0.530	0.0500	0.00331	1.00	
Iron	1.65	0.0500	0.00926	1.00	

TS3-I-180122	18-01-1560-3-B	01/22/18 09:15	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:47	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00984	0.00100	0.000140	1.00	
Lead	0.0346	0.00100	0.0000898	1.00	
Zinc	0.127	0.00500	0.000479	1.00	
Aluminum	0.535	0.0500	0.00331	1.00	
Iron	1.19	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-I-180122	18-01-1560-4-B	01/22/18 09:40	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:50	180129LA6

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00440	0.00100	0.000140	1.00	
Lead	0.00960	0.00100	0.0000898	1.00	
Zinc	0.0581	0.00500	0.000479	1.00	
Aluminum	0.175	0.0500	0.00331	1.00	
Iron	0.330	0.0500	0.00926	1.00	

Method Blank	099-16-094-2184	N/A	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:07	180129LA6
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

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RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type		Matrix		Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number		
18-01-1557-1	Sample		Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEMS2		
18-01-1557-1	Matrix Spike		Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEMS2		
18-01-1557-1	Matrix Spike Duplicate		Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEMS2		
Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	20.00	18.10	90	17.80	89	64-132	2	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-I-180122	Sample	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:42	180129SA6A
TS1-I-180122	Matrix Spike	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:37	180129SA6A
TS1-I-180122	Matrix Spike Duplicate	Aqueous	ICP/MS 03	01/29/18	01/30/18 14:40	180129SA6A

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.01311	0.1000	0.1199	107	0.1167	104	80-120	3	0-20	
Lead	0.06686	0.1000	0.1722	105	0.1690	102	80-120	2	0-20	
Zinc	0.2725	0.1000	0.3706	98	0.3520	80	80-120	5	0-20	
Aluminum	0.7361	0.1000	0.8303	4X	0.8580	4X	80-120	4X	0-20	Q
Iron	1.551	5.100	7.169	110	7.021	107	80-120	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-1354-2	Sample	Aqueous	N/A	01/23/18 00:00	01/23/18 18:00	I0123TSSD2
18-01-1354-2	Sample Duplicate	Aqueous	N/A	01/23/18 00:00	01/23/18 18:00	I0123TSSD2

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Suspended	1022	1020	0	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18

Work Order: 18-01-1560

Preparation: N/A

Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-01-1557-1	Sample	Aqueous	PH 1	01/22/18 00:00	01/22/18 18:38	I0123PHD1
18-01-1557-1	Sample Duplicate	Aqueous	PH 1	01/22/18 00:00	01/22/18 18:38	I0123PHD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	8.910	8.970	1	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-86	LCS	Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEML2			
099-16-927-86	LCSD	Aqueous		N/A	01/25/18	01/25/18 17:30	I0125HEML2			
Parameter	Spike Added	LCS	Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	20.00	18.10		90	18.50	92	64-132	2	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8848	LCS	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1			
099-09-010-8848	LCSD	Aqueous	N/A	01/23/18	01/23/18 18:00	I0123TSSL1			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	92.00	92	94.00	94	80-120	2	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 01/23/18
Work Order: 18-01-1560
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2184	LCS	Aqueous	ICP/MS 03	01/29/18	01/30/18 15:24	180129LA6
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.1020	102	80-120	
Lead		0.1000	0.1005	100	80-120	
Zinc		0.1000	0.1037	104	80-120	
Aluminum		0.1000	0.1016	102	80-120	
Iron		5.100	4.854	95	80-120	

Sample Analysis Summary Report

Work Order: 18-01-1560

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 03	1
SM 2540 D	N/A	1136	N/A	1
SM 4500 H+ B	N/A	1139	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-01-1560

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



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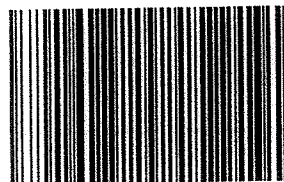
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GARDEN GROVE, CA 92841

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COD: \$0.00
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Reference:
CDIM *ISS*
Delivery Instructions:

D92845A



78283473

Print Date: 1/22/2018 1:24 PM

Package 2 of 2

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.
Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.
Step 2: Fold this page in half.
Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

1560

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDM

DATE: 01/23/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 2.1 °C (w/ CF): 2.3 °C; ☒ Blank ☐ Sample☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling☐ Sample(s) received at ambient temperature; placed on ice for transport by courierAmbient Temperature: ☐ Air ☐ Filter

Checked by: 15

CUSTODY SEAL:

Cooler ☒ Present and Intact☐ Present but Not Intact☐ Not Present☐ N/A

Checked by: 15

Sample(s) ☐ Present and Intact☐ Present but Not Intact☒ Not Present☐ N/A

Checked by: 1053

SAMPLE CONDITION:

Chain-of-Custody (COC) document(s) received with samples ☒ Yes ☐ No ☐ N/ACOC document(s) received complete ☒ Yes ☐ No ☐ N/A☐ Sampling date ☐ Sampling time ☐ Matrix ☐ Number of containers☐ No analysis requested ☐ Not relinquished ☐ No relinquished date ☐ No relinquished timeSampler's name indicated on COC ☒ Yes ☐ No ☐ N/ASample container label(s) consistent with COC ☒ Yes ☐ No ☐ N/ASample container(s) intact and in good condition ☒ Yes ☐ No ☐ N/AProper containers for analyses requested ☒ Yes ☐ No ☐ N/ASufficient volume/mass for analyses requested ☒ Yes ☐ No ☐ N/ASamples received within holding time ☒ Yes ☐ No ☐ N/A

Aqueous samples for certain analyses received within 15-minute holding time

☒ pH ☐ Residual Chlorine ☐ Dissolved Sulfide ☐ Dissolved Oxygen ☐ Yes ☒ No ☐ N/AProper preservation chemical(s) noted on COC and/or sample container ☒ Yes ☐ No ☐ N/A

Unpreserved aqueous sample(s) received for certain analyses

☐ Volatile Organics ☐ Total Metals ☐ Dissolved MetalsAcid/base preserved samples - pH within acceptable range ☒ Yes ☐ No ☐ N/AContainer(s) for certain analysis free of headspace ☐ Yes ☐ No ☒ N/A☐ Volatile Organics ☐ Dissolved Gases (RSK-175) ☐ Dissolved Oxygen (SM 4500)☐ Carbon Dioxide (SM 4500) ☐ Ferrous Iron (SM 3500) ☐ Hydrogen Sulfide (Hach)Tedlar™ bag(s) free of condensation ☐ Yes ☐ No ☒ N/A

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 125PB ☐ 125PB_{znna} (pH__9)☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☒ 250PB_n (pH__2) ☐ 500AGB ☐ 500AG_J ☐ 500AG_J_s (pH__2) ☐ 500PB☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☒ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 1053s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄·H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 728

* (-4) only 1 AGB_s



February 21, 2018

Vista Work Order No. 1800172

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 23, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800172

Case Narrative

Sample Condition on Receipt:

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

EPA Method 1699

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800172-01	TS2-E-180122	EPA Method 1699	13C12-4,4'-DDE	H	42.0
B8A0153-BLK1	B8A0153-BLK1	EPA Method 1699	13C12-Endrin Aldehyde	H	4.86

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800172-01	TS2-E-180122	22-Jan-18 08:50	23-Jan-18 10:33	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8A0153			Lab Sample: B8A0153-BLK1				
Sample Size: 1.00 L		Date Extracted: 25-Jan-2018 8:49			Date Analyzed: 14-Feb-18 04:19 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
Hexachlorobenzene	5.25			J	IS 13C6-Hexachlorobenzene	58.6	5 - 120		
alpha-BHC	ND	2.32			IS 13C6-alpha-BHC	77.7	32 - 130		
Lindane (gamma-BHC)	ND	3.09			IS 13C6-Lindane (gamma-BHC)	88.1	11 - 120		
beta-BHC	ND	2.85			IS 13C6-beta-BHC	90.4	32 - 130		
delta-BHC	ND	2.05			IS 13C6-delta-BHC	96.5	36 - 137		
Heptachlor	ND	2.17			IS 13C10-Heptachlor	112	5 - 120		
Aldrin	ND	2.55			IS 13C12-Aldrin	94.7	5 - 120		
Oxychlordane	ND	5.76			IS 13C10-Oxychlordane	122	23 - 135		
cis-Heptachlor Epoxide	ND	4.25			IS 13C10-cis-Heptachlor Epoxide	119	27 - 137		
trans-Heptachlor Epoxide	ND	12.1			IS 13C10-trans-Chlordane (gamma)	106	21 - 132		
trans-Chlordane (gamma)	ND	5.18			IS 13C10-trans-Nonachlor	120	14 - 136		
trans-Nonachlor	ND	4.38			IS 13C9-Endosulfan I (alpha)	117	15 - 148		
cis-Chlordane (alpha)	ND	4.08			IS 13C12-2,4'-DDE	88.0	47 - 160		
Endosulfan I (alpha)	ND	7.07			IS 13C12-4,4'-DDE	105	47 - 160		
2,4'-DDE	ND	2.48			IS 13C12-Dieldrin	92.9	40 - 151		
4,4'-DDE	ND	2.42			IS 13C12-Endrin	91.2	35 - 155		
Dieldrin	ND	1.86			IS 13C10-cis-Nonachlor	93.0	36 - 139		
Endrin	ND	3.33			IS 13C9-Endosulfan II (beta)	91.0	5 - 122		
cis-Nonachlor	ND	2.75			IS 13C12-2,4'-DDD	101	5 - 199		
Endosulfan II (beta)	ND	4.78			IS 13C12-2,4'-DDT	101	5 - 199		
2,4'-DDD	ND	5.05			IS 13C12-4,4'-DDD	99.1	5 - 120		
2,4'-DDT	ND	8.02			IS 13C12-4,4'-DDT	94.6	5 - 120		
4,4'-DDD	ND	5.37			IS 13C9-Endosulfan Sulfate	98.1	15 - 148		
4,4'-DDT	ND	8.83			IS 13C12-Methoxychlor	67.6	5 - 120		
Endosulfan Sulfate	ND	4.87			IS 13C10-Mirex	58.1	5 - 120		
4,4'-Methoxychlor	ND	1.36			IS 13C12-Endrin Aldehyde	4.86	15 - 148		H
Mirex	ND	0.836			IS 13C12-Endrin Ketone	39.2	15 - 148		
Endrin Aldehyde	ND	30.3							
Endrin Ketone	ND	6.39							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8A0153	Lab Sample: B8A0153-BS1				
Sample Size: 1.00 L		Date Extracted: 25-Jan-2018 8:49	Date Analyzed: 14-Feb-18 01:03 Column: ZB-50				
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
Hexachlorobenzene	979	1000	97.9	50 - 120	IS 13C6-Hexachlorobenzene	62.1	5 - 120
alpha-BHC	960	1000	96.0	50 - 120	IS 13C6-alpha-BHC	80.0	17 - 141
Lindane (gamma-BHC)	985	1000	98.5	50 - 120	IS 13C6-Lindane (gamma-BHC)	82.4	5 - 124
beta-BHC	930	1000	93.0	50 - 120	IS 13C6-beta-BHC	90.7	17 - 141
delta-BHC	918	1000	91.8	50 - 120	IS 13C6-delta-BHC	91.2	16 - 150
Heptachlor	898	1000	89.8	50 - 120	IS 13C10-Heptachlor	107	5 - 128
Aldrin	1000	1000	100	50 - 120	IS 13C12-Aldrin	88.4	5 - 126
Oxychlordane	902	1000	90.2	50 - 120	IS 13C10-Oxychlordane	115	5 - 144
cis-Heptachlor Epoxide	911	1000	91.1	50 - 120	IS 13C10-cis-Heptachlor Epoxide	104	8 - 146
trans-Heptachlor Epoxide	1060	1000	106	50 - 120	IS 13C10-trans-Chlordane (gamma)	96.0	15 - 144
trans-Chlordane (gamma)	1030	1000	103	50 - 120	IS 13C10-trans-Nonachlor	96.7	13 - 149
trans-Nonachlor	942	1000	94.2	50 - 120	IS 13C9-Endosulfan I (alpha)	111	5 - 144
cis-Chlordane (alpha)	805	1000	80.5	50 - 120	IS 13C12-2,4'-DDE	79.9	26 - 169
Endosulfan I (alpha)	931	1000	93.1	50 - 120	IS 13C12-4,4'-DDE	90.3	26 - 169
2,4'-DDE	1000	1000	100	24 - 123	IS 13C12-Dieldrin	88.9	19 - 161
4,4'-DDE	943	1000	94.3	50 - 120	IS 13C12-Endrin	80.7	20 - 157
Dieldrin	948	1000	94.8	50 - 120	IS 13C10-cis-Nonachlor	80.7	17 - 154
Endrin	1090	1000	109	50 - 120	IS 13C9-Endosulfan II (beta)	83.5	5 - 120
cis-Nonachlor	954	1000	95.4	50 - 120	IS 13C12-2,4'-DDD	96.2	14 - 200
Endosulfan II (beta)	979	1000	97.9	5 - 200	IS 13C12-2,4'-DDT	97.7	14 - 200
2,4'-DDD	927	1000	92.7	50 - 120	IS 13C12-4,4'-DDD	95.4	14 - 200
2,4'-DDT	927	1000	92.7	50 - 120	IS 13C12-4,4'-DDT	96.0	13 - 200
4,4'-DDD	920	1000	92.0	42 - 120	IS 13C9-Endosulfan Sulfate	80.4	5 - 144
4,4'-DDT	893	1000	89.3	50 - 120	IS 13C12-Methoxychlor	78.5	8 - 200
Endosulfan Sulfate	1010	1000	101	50 - 120	IS 13C10-Mirex	66.8	5 - 138
4,4'-Methoxychlor	927	1000	92.7	50 - 120	IS 13C12-Endrin Aldehyde	8.88	5 - 144
Mirex	926	1000	92.6	50 - 120	IS 13C12-Endrin Ketone	50.4	5 - 144
Endrin Aldehyde	1290	1000	129	50 - 134			
Endrin Ketone	966	1000	96.6	50 - 134			

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-E-180122					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800172-01	Date Received:	23-Jan-2018 10:33
Project:	101-002-LRTC, Task 1		Sample Size:	1.04 L	QC Batch:	B8A0153	Date Extracted:	25-Jan-2018 8:49
Date Collected:	22-Jan-2018 8:50				Date Analyzed:	15-Feb-18 02:46	Column: ZB-50	
						20-Feb-18 11:25	Column: ZB-50	
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	40.2			B	IS 13C6-Hexachlorobenzene	67.6	5 - 120	
alpha-BHC	105				IS 13C6-alpha-BHC	91.5	32 - 130	
Lindane (gamma-BHC)	169				IS 13C6-Lindane (gamma-BHC)	81.7	11 - 120	
beta-BHC	526				IS 13C6-beta-BHC	81.4	32 - 130	
delta-BHC	318				IS 13C6-delta-BHC	73.0	36 - 137	
Heptachlor	ND	15.4		D	IS 13C10-Heptachlor	82.9	5 - 120	D
Aldrin	8530				IS 13C12-Aldrin	40.9	5 - 120	
Oxychlordane	ND	285			IS 13C10-Oxychlordane	45.0	23 - 135	
cis-Heptachlor Epoxide	ND	222			IS 13C10-cis-Heptachlor Epoxide	45.8	27 - 137	
trans-Heptachlor Epoxide	ND	544			IS 13C10-trans-Chlordane (gamma)	99.4	21 - 132	D
trans-Chlordane (gamma)	6710			D	IS 13C10-trans-Nonachlor	32.6	14 - 136	
trans-Nonachlor	991				IS 13C9-Endosulfan I (alpha)	40.3	15 - 148	
cis-Chlordane (alpha)	2460				IS 13C12-2,4'-DDE	53.8	47 - 160	
Endosulfan I (alpha)	ND	402			IS 13C12-4,4'-DDE	42.0	47 - 160	H
2,4'-DDE	140				IS 13C12-Dieldrin	54.1	40 - 151	
4,4'-DDE	2680				IS 13C12-Endrin	58.0	35 - 155	
Dieldrin	5410				IS 13C10-cis-Nonachlor	39.1	36 - 139	
Endrin	1440				IS 13C9-Endosulfan II (beta)	40.7	5 - 122	
cis-Nonachlor	ND	261			IS 13C12-2,4'-DDD	70.2	5 - 199	
Endosulfan II (beta)	ND	367			IS 13C12-2,4'-DDT	68.6	5 - 199	
2,4'-DDD	4160				IS 13C12-4,4'-DDD	62.6	5 - 120	
2,4'-DDT	493				IS 13C12-4,4'-DDT	57.7	5 - 120	
4,4'-DDD	9110				IS 13C9-Endosulfan Sulfate	32.2	15 - 148	
4,4'-DDT	2310				IS 13C12-Methoxychlor	32.7	5 - 120	
Endosulfan Sulfate	ND	568			IS 13C10-Mirex	25.6	5 - 120	
4,4'-Methoxychlor	ND	110			IS 13C12-Endrin Aldehyde	34.7	15 - 148	
Mirex	ND	57.6			IS 13C12-Endrin Ketone	34.3	15 - 148	
Endrin Aldehyde	ND	252						
Endrin Ketone	3680							

DL - Sample specific estimated detection limit

LCL-UCL - Lower control limit - upper control limit

EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Sample Log-in Checklist

Vista Work Order #:

1800172

TAT

Std

Samples Arrival:	Date/Time 01/23/18 1033	Initials: VBARB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 01/23/18 1114	Initials: VBARB	Location: WR-2
			Shelf/Rack: A2
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
	<input type="radio"/> GSO	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
Temp °C: 4.3 (uncorrected)	Time: 1035		Thermometer ID: IR-4
Temp °C: 4.2 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received? A, B, C		<input checked="" type="checkbox"/>		
Holding Time Acceptable?		<input checked="" type="checkbox"/>		
Shipping Container(s) Intact?		<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?				<input checked="" type="checkbox"/>
Shipping Documentation Present?		<input checked="" type="checkbox"/>		
Airbill	Trk # 7894 2566 9578	<input checked="" type="checkbox"/>		
Sample Container Intact?		<input checked="" type="checkbox"/>		
Sample Custody Seals Intact?				<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?		<input checked="" type="checkbox"/>		
COC Anomaly/Sample Acceptance Form completed?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				<input checked="" type="checkbox"/>
Preservation Documented:	Na ₂ S ₂ O ₃ Trizma None	Yes	No	<input checked="" type="checkbox"/> NA
Shipping Container	Vista <input checked="" type="radio"/> Client	Retain	<input checked="" type="radio"/> Return	Dispose

Comments:



February 16, 2018

Vista Work Order No. 1800171

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 23, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800171**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

As directed, the contents of the three sample containers were composited prior to taking an aliquot for extraction. The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column. The chemist noted that the extract was colored at final volume, indicating the presence of interferences.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800171-01	TS2-I-180122	EPA Method 1699	13C12-2,4'-DDE	H	30.5
1800171-01	TS2-I-180122	EPA Method 1699	13C12-4,4'-DDE	H	22.4
1800171-01	TS2-I-180122	EPA Method 1699	13C12-Dieldrin	H	27.7
1800171-01	TS2-I-180122	EPA Method 1699	13C12-Endrin	H	29.1
1800171-01	TS2-I-180122	EPA Method 1699	13C10-cis-Nonachlor	H	19.0
1800171-01	TS2-I-180122	EPA Method 1699	13C12-Endrin Ketone	H	14.9
B8A0153-BLK1	B8A0153-BLK1	EPA Method 1699	13C12-Endrin Aldehyde	H	4.86

H = Recovery was outside laboratory acceptance criteria.

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Certifications.....	10
Sample Receipt.....	11

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800171-01	TS2-I-180122	22-Jan-18 08:55	23-Jan-18 10:33	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8A0153			Lab Sample: B8A0153-BLK1				
Sample Size: 1.00 L		Date Extracted: 25-Jan-2018 8:49			Date Analyzed: 14-Feb-18 04:19 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
Hexachlorobenzene	5.25			J	IS 13C6-Hexachlorobenzene	58.6	5 - 120		
alpha-BHC	ND	2.32			IS 13C6-alpha-BHC	77.7	32 - 130		
Lindane (gamma-BHC)	ND	3.09			IS 13C6-Lindane (gamma-BHC)	88.1	11 - 120		
beta-BHC	ND	2.85			IS 13C6-beta-BHC	90.4	32 - 130		
delta-BHC	ND	2.05			IS 13C6-delta-BHC	96.5	36 - 137		
Heptachlor	ND	2.17			IS 13C10-Heptachlor	112	5 - 120		
Aldrin	ND	2.55			IS 13C12-Aldrin	94.7	5 - 120		
Oxychlordane	ND	5.76			IS 13C10-Oxychlordane	122	23 - 135		
cis-Heptachlor Epoxide	ND	4.25			IS 13C10-cis-Heptachlor Epoxide	119	27 - 137		
trans-Heptachlor Epoxide	ND	12.1			IS 13C10-trans-Chlordane (gamma)	106	21 - 132		
trans-Chlordane (gamma)	ND	5.18			IS 13C10-trans-Nonachlor	120	14 - 136		
trans-Nonachlor	ND	4.38			IS 13C9-Endosulfan I (alpha)	117	15 - 148		
cis-Chlordane (alpha)	ND	4.08			IS 13C12-2,4'-DDE	88.0	47 - 160		
Endosulfan I (alpha)	ND	7.07			IS 13C12-4,4'-DDE	105	47 - 160		
2,4'-DDE	ND	2.48			IS 13C12-Dieldrin	92.9	40 - 151		
4,4'-DDE	ND	2.42			IS 13C12-Endrin	91.2	35 - 155		
Dieldrin	ND	1.86			IS 13C10-cis-Nonachlor	93.0	36 - 139		
Endrin	ND	3.33			IS 13C9-Endosulfan II (beta)	91.0	5 - 122		
cis-Nonachlor	ND	2.75			IS 13C12-2,4'-DDD	101	5 - 199		
Endosulfan II (beta)	ND	4.78			IS 13C12-2,4'-DDT	101	5 - 199		
2,4'-DDD	ND	5.05			IS 13C12-4,4'-DDD	99.1	5 - 120		
2,4'-DDT	ND	8.02			IS 13C12-4,4'-DDT	94.6	5 - 120		
4,4'-DDD	ND	5.37			IS 13C9-Endosulfan Sulfate	98.1	15 - 148		
4,4'-DDT	ND	8.83			IS 13C12-Methoxychlor	67.6	5 - 120		
Endosulfan Sulfate	ND	4.87			IS 13C10-Mirex	58.1	5 - 120		
4,4'-Methoxychlor	ND	1.36			IS 13C12-Endrin Aldehyde	4.86	15 - 148		H
Mirex	ND	0.836			IS 13C12-Endrin Ketone	39.2	15 - 148		
Endrin Aldehyde	ND	30.3							
Endrin Ketone	ND	6.39							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8A0153			Lab Sample: B8A0153-BS1			
Sample Size: 1.00 L		Date Extracted: 25-Jan-2018 8:49			Date Analyzed: 14-Feb-18 01:03 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	979	1000	97.9	50 - 120	IS	13C6-Hexachlorobenzene	62.1	5 - 120
alpha-BHC	960	1000	96.0	50 - 120	IS	13C6-alpha-BHC	80.0	17 - 141
Lindane (gamma-BHC)	985	1000	98.5	50 - 120	IS	13C6-Lindane (gamma-BHC)	82.4	5 - 124
beta-BHC	930	1000	93.0	50 - 120	IS	13C6-beta-BHC	90.7	17 - 141
delta-BHC	918	1000	91.8	50 - 120	IS	13C6-delta-BHC	91.2	16 - 150
Heptachlor	898	1000	89.8	50 - 120	IS	13C10-Heptachlor	107	5 - 128
Aldrin	1000	1000	100	50 - 120	IS	13C12-Aldrin	88.4	5 - 126
Oxychlordane	902	1000	90.2	50 - 120	IS	13C10-Oxychlordane	115	5 - 144
cis-Heptachlor Epoxide	911	1000	91.1	50 - 120	IS	13C10-cis-Heptachlor Epoxide	104	8 - 146
trans-Heptachlor Epoxide	1060	1000	106	50 - 120	IS	13C10-trans-Chlordane (gamma)	96.0	15 - 144
trans-Chlordane (gamma)	1030	1000	103	50 - 120	IS	13C10-trans-Nonachlor	96.7	13 - 149
trans-Nonachlor	942	1000	94.2	50 - 120	IS	13C9-Endosulfan I (alpha)	111	5 - 144
cis-Chlordane (alpha)	805	1000	80.5	50 - 120	IS	13C12-2,4'-DDE	79.9	26 - 169
Endosulfan I (alpha)	931	1000	93.1	50 - 120	IS	13C12-4,4'-DDE	90.3	26 - 169
2,4'-DDE	1000	1000	100	24 - 123	IS	13C12-Dieldrin	88.9	19 - 161
4,4'-DDE	943	1000	94.3	50 - 120	IS	13C12-Endrin	80.7	20 - 157
Dieldrin	948	1000	94.8	50 - 120	IS	13C10-cis-Nonachlor	80.7	17 - 154
Endrin	1090	1000	109	50 - 120	IS	13C9-Endosulfan II (beta)	83.5	5 - 120
cis-Nonachlor	954	1000	95.4	50 - 120	IS	13C12-2,4'-DDD	96.2	14 - 200
Endosulfan II (beta)	979	1000	97.9	5 - 200	IS	13C12-2,4'-DDT	97.7	14 - 200
2,4'-DDD	927	1000	92.7	50 - 120	IS	13C12-4,4'-DDD	95.4	14 - 200
2,4'-DDT	927	1000	92.7	50 - 120	IS	13C12-4,4'-DDT	96.0	13 - 200
4,4'-DDD	920	1000	92.0	42 - 120	IS	13C9-Endosulfan Sulfate	80.4	5 - 144
4,4'-DDT	893	1000	89.3	50 - 120	IS	13C12-Methoxychlor	78.5	8 - 200
Endosulfan Sulfate	1010	1000	101	50 - 120	IS	13C10-Mirex	66.8	5 - 138
4,4'-Methoxychlor	927	1000	92.7	50 - 120	IS	13C12-Endrin Aldehyde	8.88	5 - 144
Mirex	926	1000	92.6	50 - 120	IS	13C12-Endrin Ketone	50.4	5 - 144
Endrin Aldehyde	1290	1000	129	50 - 134				
Endrin Ketone	966	1000	96.6	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-I-180122					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800171-01	Date Received:	23-Jan-2018 10:33
Project:	101-002-LRTC, Task 1		Sample Size:	0.998 L	QC Batch:	B8A0153	Date Extracted:	25-Jan-2018 8:49
Date Collected:	22-Jan-2018 8:55				Date Analyzed:	15-Feb-18 01:57 Column: ZB-50		
						15-Feb-18 23:56 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	1910			B	IS 13C6-Hexachlorobenzene	103	5 - 120	
alpha-BHC	183				IS 13C6-alpha-BHC	65.2	32 - 130	
Lindane (gamma-BHC)	223				IS 13C6-Lindane (gamma-BHC)	115	11 - 120	
beta-BHC	639				IS 13C6-beta-BHC	60.3	32 - 130	
delta-BHC	495				IS 13C6-delta-BHC	62.7	36 - 137	
Heptachlor	ND	32.7			IS 13C10-Heptachlor	77.8	5 - 120	
Aldrin	7600				IS 13C12-Aldrin	55.0	5 - 120	
Oxychlordane	4830				IS 13C10-Oxychlordane	44.8	23 - 135	
cis-Heptachlor Epoxide	ND	357			IS 13C10-cis-Heptachlor Epoxide	42.4	27 - 137	
trans-Heptachlor Epoxide	ND	873			IS 13C10-trans-Chlordane (gamma)	59.5	21 - 132	D
trans-Chlordane (gamma)	6840			D	IS 13C10-trans-Nonachlor	28.4	14 - 136	
trans-Nonachlor	1800				IS 13C9-Endosulfan I (alpha)	41.7	15 - 148	
cis-Chlordane (alpha)	3830				IS 13C12-2,4'-DDE	30.5	47 - 160	H
Endosulfan I (alpha)	ND	624			IS 13C12-4,4'-DDE	22.4	47 - 160	H
2,4'-DDE	1120				IS 13C12-Dieldrin	27.7	40 - 151	H
4,4'-DDE	17500				IS 13C12-Endrin	29.1	35 - 155	H
Dieldrin	7610				IS 13C10-cis-Nonachlor	19.0	36 - 139	H
Endrin	2110				IS 13C9-Endosulfan II (beta)	23.8	5 - 122	
cis-Nonachlor	ND	977			IS 13C12-2,4'-DDD	37.7	5 - 199	
Endosulfan II (beta)	ND	1470			IS 13C12-2,4'-DDT	26.1	5 - 199	
2,4'-DDD	8990				IS 13C12-4,4'-DDD	25.8	5 - 120	
2,4'-DDT	7300				IS 13C12-4,4'-DDT	28.6	5 - 120	D
4,4'-DDD	18700				IS 13C9-Endosulfan Sulfate	15.5	15 - 148	
4,4'-DDT	27400			D	IS 13C12-Methoxychlor	17.0	5 - 120	
Endosulfan Sulfate	ND	2190			IS 13C10-Mirex	13.0	5 - 120	
4,4'-Methoxychlor	ND	2090			IS 13C12-Endrin Aldehyde	15.7	15 - 148	
Mirex	ND	355			IS 13C12-Endrin Ketone	14.9	15 - 148	H
Endrin Aldehyde	ND	841						
Endrin Ketone	ND	1900						

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Sample Log-in Checklist

Vista Work Order #:

1800171

TAT

Std

Samples Arrival:	Date/Time 01/23/18 1033	Initials: VBARB	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 01/23/18 1100	Initials: VBARB	Location: WR-2 Shelf/Rack: A2
Delivered By:	<input checked="" type="radio"/> FedEx <input type="radio"/> UPS <input type="radio"/> On Trac <input type="radio"/> GSO <input type="radio"/> DHL <input type="radio"/> Hand Delivered <input type="radio"/> Other		
Preservation:	<input checked="" type="radio"/> Ice <input type="radio"/> Blue Ice <input type="radio"/> Dry Ice <input type="radio"/> None		
Temp °C: 4.3 (uncorrected)	Time: 1035	Thermometer ID: IR-4	
Temp °C: 4.2 (corrected)	Probe used: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk # 7894 2566 9578			
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Preservation Documented:	Yes	No	NA
Shipping Container	Vista	Client	Retain
	Return	Dispose	

Comments:



WORK ORDER NUMBER: 18-03-0136

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CDIM Engineering

Client Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Attention: Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed in a hand-drawn oval.

Approved for release on 03/12/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
 Work Order Number: 18-03-0136

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Work Order: 18-03-0136

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/02/18. They were assigned to Work Order 18-03-0136.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Sample Summary

Client: CDIM Engineering	Work Order: 18-03-0136
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-002-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 03/02/18 09:50
	Number of Containers: 24

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-E-180301	18-03-0136-1	03/01/18 08:41	8	Aqueous
TS2-E-180301	18-03-0136-2	03/01/18 09:08	4	Aqueous
TS3-E-180301	18-03-0136-3	03/01/18 09:19	4	Aqueous
TS4-E-180301	18-03-0136-4	03/01/18 09:38	4	Aqueous
TSX-E-DUP-180301	18-03-0136-5	03/01/18 09:40	4	Aqueous

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-03-0136
Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
Received: 03/02/18

Attn: Scott Bourne

Page 1 of 2

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-E-180301 (18-03-0136-1)						
Copper	0.00192		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00544		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0829	B	0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0717		0.0500	mg/L	EPA 200.8	N/A
Iron	0.138		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	16		1.0	mg/L	SM 2540 D	N/A
pH	7.15	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-E-180301 (18-03-0136-2)						
Copper	0.0102		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00149		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0840	B	0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0164	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0171	J	0.00926*	mg/L	EPA 200.8	N/A
Solids, Total Suspended	1.9		1.0	mg/L	SM 2540 D	N/A
pH	7.25	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-E-180301 (18-03-0136-3)						
Copper	0.00160		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00114		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0357	B	0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0156	J	0.00331*	mg/L	EPA 200.8	N/A
Iron	0.0167	J	0.00926*	mg/L	EPA 200.8	N/A
pH	7.44	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-E-180301 (18-03-0136-4)						
Copper	0.00252		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000850	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0903	B	0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0655		0.0500	mg/L	EPA 200.8	N/A
Iron	0.0705		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	3.2		1.0	mg/L	SM 2540 D	N/A
pH	7.06	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

* MDL is shown

Detections Summary

Client: CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Work Order: 18-03-0136
Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
Received: 03/02/18

Attn: Scott Bourne

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Client SampleID

<u>Analyte</u>	<u>Result</u>	<u>Qualifiers</u>	<u>RL</u>	<u>Units</u>	<u>Method</u>	<u>Extraction</u>
TSX-E-DUP-180301 (18-03-0136-5)						
Copper	0.00387		0.00100	mg/L	EPA 200.8	N/A
Lead	0.000964	J	0.0000898*	mg/L	EPA 200.8	N/A
Zinc	0.0440	B	0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.0688		0.0500	mg/L	EPA 200.8	N/A
Iron	0.368		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	4.1		1.0	mg/L	SM 2540 D	N/A
pH	7.31	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

Subcontracted analyses, if any, are not included in this summary.

Return to Contents

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180301	18-03-0136-1-D	03/01/18 08:41	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS2-E-180301	18-03-0136-2-B	03/01/18 09:08	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS3-E-180301	18-03-0136-3-B	03/01/18 09:19	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TS4-E-180301	18-03-0136-4-B	03/01/18 09:38	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

TSX-E-DUP-180301	18-03-0136-5-B	03/01/18 09:40	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-98	N/A	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: SM 2540 D
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180301	18-03-0136-1-A	03/01/18 08:41	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	16	1.0	0.83	1.00	

TS2-E-180301	18-03-0136-2-A	03/01/18 09:08	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	1.9	1.0	0.83	1.00	

TS3-E-180301	18-03-0136-3-A	03/01/18 09:19	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

TS4-E-180301	18-03-0136-4-A	03/01/18 09:38	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	3.2	1.0	0.83	1.00	

TSX-E-DUP-180301	18-03-0136-5-A	03/01/18 09:40	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	4.1	1.0	0.83	1.00	

Method Blank	099-09-010-8939	N/A	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180301	18-03-0136-1-H	03/01/18 08:41	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.15	0.01	0.01	1.00	BV,BU

TS2-E-180301	18-03-0136-2-D	03/01/18 09:08	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.25	0.01	0.01	1.00	BV,BU

TS3-E-180301	18-03-0136-3-D	03/01/18 09:19	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.44	0.01	0.01	1.00	BV,BU

TS4-E-180301	18-03-0136-4-D	03/01/18 09:38	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.06	0.01	0.01	1.00	BV,BU

TSX-E-DUP-180301	18-03-0136-5-D	03/01/18 09:40	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.31	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-E-180301	18-03-0136-1-G	03/01/18 08:41	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:31	180306LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00192	0.00100	0.000140	1.00	
Lead	0.00544	0.00100	0.0000898	1.00	
Zinc	0.0829	0.00500	0.000479	1.00	B
Aluminum	0.0717	0.0500	0.00331	1.00	
Iron	0.138	0.0500	0.00926	1.00	

TS2-E-180301	18-03-0136-2-C	03/01/18 09:08	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:34	180306LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.0102	0.00100	0.000140	1.00	
Lead	0.00149	0.00100	0.0000898	1.00	
Zinc	0.0840	0.00500	0.000479	1.00	B
Aluminum	0.0164	0.0500	0.00331	1.00	J
Iron	0.0171	0.0500	0.00926	1.00	J

TS3-E-180301	18-03-0136-3-C	03/01/18 09:19	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:37	180306LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00160	0.00100	0.000140	1.00	
Lead	0.00114	0.00100	0.0000898	1.00	
Zinc	0.0357	0.00500	0.000479	1.00	B
Aluminum	0.0156	0.0500	0.00331	1.00	J
Iron	0.0167	0.0500	0.00926	1.00	J

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 03/02/18
 Work Order: 18-03-0136
 Preparation: N/A
 Method: EPA 200.8
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-E-180301	18-03-0136-4-C	03/01/18 09:38	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:40	180306LA2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00252	0.00100	0.000140	1.00	
Lead	0.000850	0.00100	0.0000898	1.00	J
Zinc	0.0903	0.00500	0.000479	1.00	B
Aluminum	0.0655	0.0500	0.00331	1.00	
Iron	0.0705	0.0500	0.00926	1.00	

TSX-E-DUP-180301	18-03-0136-5-C	03/01/18 09:40	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:43	180306LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00387	0.00100	0.000140	1.00	
Lead	0.000964	0.00100	0.0000898	1.00	J
Zinc	0.0440	0.00500	0.000479	1.00	B
Aluminum	0.0688	0.0500	0.00331	1.00	
Iron	0.368	0.0500	0.00926	1.00	

Method Blank	099-16-094-2235	N/A	Aqueous	ICP/MS 03	03/06/18	03/09/18 13:22	180306LA2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	0.000874	0.00500	0.000479	1.00	J
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180301	Sample	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2
TS1-E-180301	Matrix Spike	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2
TS1-E-180301	Matrix Spike Duplicate	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	20.00	15.10	76	17.60	88	64-132	15	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
TS1-E-180301	Sample	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:31	180306SA2
TS1-E-180301	Matrix Spike	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:17	180306SA2
TS1-E-180301	Matrix Spike Duplicate	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:20	180306SA2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	0.001924	0.1000	0.09982	98	0.1058	104	80-120	6	0-20	
Lead	0.005442	0.1000	0.1080	103	0.1125	107	80-120	4	0-20	
Zinc	0.08288	0.1000	0.1920	109	0.1832	100	80-120	5	0-20	
Aluminum	0.07171	0.1000	0.1871	115	0.1887	117	80-120	1	0-20	
Iron	0.1378	5.100	5.506	105	5.980	115	80-120	8	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-E-180301	Sample	Aqueous	N/A	03/05/18 00:00	03/05/18 16:00	I0305TSSD1
TS1-E-180301	Sample Duplicate	Aqueous	N/A	03/05/18 00:00	03/05/18 16:00	I0305TSSD1

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
Solids, Total Suspended	15.75	15.50	2	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
TS1-E-180301	Sample	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
TS1-E-180301	Sample Duplicate	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	7.150	7.480	5	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 3

Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-98	LCS	Aqueous		N/A	03/09/18	03/09/18 14:45	I0309HEML2			
099-16-927-98	LCSD	Aqueous		N/A	03/09/18	03/09/18 14:45	I0309HEML2			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS</u>	<u>Conc.</u>	<u>LCS</u> <u>%Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD</u> <u>%Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	20.00	17.70		88	16.40	82	64-132	8	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 2 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8939	LCS	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1			
099-09-010-8939	LCSD	Aqueous	N/A	03/05/18	03/05/18 16:00	I0305TSSL1			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS Conc.</u>	<u>LCS %Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD %Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	100.0	92.00	92	93.00	93	80-120	1	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0136
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 3 of 3

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2235	LCS	Aqueous	ICP/MS 03	03/06/18	03/09/18 13:20	180306LA2
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.1038	104	80-120	
Lead		0.1000	0.1050	105	80-120	
Zinc		0.1000	0.1081	108	80-120	
Aluminum		0.1000	0.1031	103	80-120	
Iron		5.100	5.327	104	80-120	

Sample Analysis Summary Report

Work Order: 18-03-0136

Page 1 of 1

<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 05	1
SM 2540 D	N/A	1136	N/A	1
SM 4500 H+ B	N/A	1086	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-03-0136

Page 1 of 1

<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables
and the original chain-of-custody form to:
sab@cdimengineering.com
mec@cdimengineering.com

13 ecdimengineering.com

Client Contact

Project Manager: Scott Bourne

CDIM ENGINEERING

45 POLK STREET, 3RD FLOOR

SAN FRANCISCO, CA

(415) 498-0535

PHONE

Job Name: LRTC Annual Storm Water Sampling

Address: Levin Richmond Terminal,
402 Wright Avenue, Richmond, CA 94804

Project ID: 101-002-LRTC, Task 1

Sampled by: MEC/LZ

Sample date(s):

Analysis Turnaround Time:

Standard

(Specify Days or Hours)

Lab ID

Sample Identification

Sample Date

Sample Time

Sample Matrix

of Cont.

1 TS1-E-190301 3/1/18 0841 W 8/5

2 TS2-E-190301 0909 4/5

3 TS3-E-180301 0919 4/5

4 TS4-E-180301 0938 4/5

5 TSX-E-DUP-190301 0940 4/5

Field Filtered (X):

Preservation Used: 1= Ice, 2= HCl; 3= H₂SO₄; 4=HNO₃; 5=NaOH; 6= Other

Special Instructions/QC Requirements & Comments: Level II Report. Report with reporting limit and method detection limit. Analyze and report only the metals listed above.

Relinquished by:

McCuningham

Company:

CDIM

Date/Time:

3/1/18

1140

Received by:

To-Ornelley

Company:

ECI

Date/Time:

3/1/18

1730

Received by:

To-Ornelley

Company:

ECI

Date/Time:

3/1/18

1140

Received by:

To-Ornelley

Company:

ECI

Date/Time:

3/1/18

1140

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To-Ornelley

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800-322-5555
www.gso.com

0136

Ship From
CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

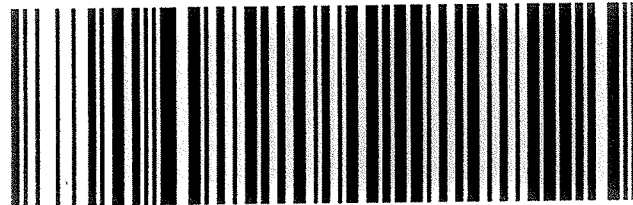
Tracking #: 539646324**NPS**

Ship To
CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

ORC
GARDEN GROVE

A

COD: \$0.00
Weight: 0 lb(s)
Reference:
CDIM
Delivery Instructions:

D92845A

80237854

Print Date: 3/1/2018 12:05 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDIM Eng'g.

DATE: 03/02/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 1.5 °C (w/ CF): 1.7 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 836

CUSTODY SEAL:

Cooler ☒ Present and Intact

☐ Present but Not Intact

☐ Not Present

☐ N/A

Checked by: 836

Sample(s) ☐ Present and Intact

☐ Present but Not Intact

☒ Not Present

☐ N/A

Checked by: 836

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Container(s) for certain analysis free of headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOA_h ☐ VOA_{na2} ☐ 100PJ ☐ 100PJ_{na2} ☐ 125AGB ☐ 125AGB_h ☐ 125AGB_p ☒ 125PB ☐ 125PB_{znna} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGB_s (pH__2) ☐ 250PB ☒ 250PB_h (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJ_s (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGB_{na2} ☐ 1AGB_s (pH__2) ☒ 1AGB_s (O&G) ☒ 1PB ☐ 1PB_{na} (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ Other Matrix (____): ☐ _____ ☐ _____ ☐ _____

Container: A = Amber, B = Bottle, C = Clear, E = Envelope, G = Glass, J = Jar, P = Plastic, and Z = Ziploc/Resealable Bag

Preservative: b = buffered, f = filtered, h = HCl, n = HNO₃, na = NaOH, na₂ = Na₂S₂O₃, p = H₃PO₄, Labeled/Checked by: 836

s = H₂SO₄, u = ultra-pure, x = Na₂SO₃+NaHSO₄.H₂O, znna = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: 1053



WORK ORDER NUMBER: 18-03-0135

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: CDIM Engineering

Client Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Attention: Scott Bourne
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

A handwritten signature in black ink, reading "Virendra R. Patel", enclosed within an oval-shaped stamp.

Approved for release on 03/12/2018 by:
Virendra Patel
Project Manager

ResultLink ▶

Email your PM ▶

Eurofins Calscience (Calscience) certifies that the test results provided in this report meet all NELAC Institute requirements for parameters for which accreditation is required or available. Any exceptions to NELAC Institute requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
 Work Order Number: 18-03-0135

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Work Order Narrative

Work Order: 18-03-0135

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 03/02/18. They were assigned to Work Order 18-03-0135.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

DoD Projects:

The test results contained in this report are accredited under the laboratory's ISO/IEC 17025:2005 and DoD-ELAP accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation ADE-1864.

Sample Summary

Client: CDIM Engineering	Work Order: 18-03-0135
45 Polk Street, 3rd floor	Project Name: LRTC Annual Storm Water Sampling / 101-002-
San Francisco, CA 94102-5260	LRTC, Task 1
	PO Number:
	Date/Time Received: 03/02/18 09:50
	Number of Containers: 16

Attn: Scott Bourne

Sample Identification	Lab Number	Collection Date and Time	Number of Containers	Matrix
TS1-I-180301	18-03-0135-1	03/01/18 08:29	4	Aqueous
TS2-I-180301	18-03-0135-2	03/01/18 09:03	4	Aqueous
TS3-I-180301	18-03-0135-3	03/01/18 09:24	4	Aqueous
TS4-I-180301	18-03-0135-4	03/01/18 09:32	4	Aqueous

Detections Summary

Client: CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Work Order: 18-03-0135
 Project Name: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1
 Received: 03/02/18

Attn: Scott Bourne

Page 1 of 1

Client SampleID

Analyte	Result	Qualifiers	RL	Units	Method	Extraction
TS1-I-180301 (18-03-0135-1)						
HEM - SGT: Oil and Grease	2.4		1.0	mg/L	EPA 1664A	N/A
Copper	0.0323		0.0100	mg/L	EPA 200.8	N/A
Lead	0.129		0.0100	mg/L	EPA 200.8	N/A
Zinc	0.516		0.0500	mg/L	EPA 200.8	N/A
Aluminum	1.35		0.500	mg/L	EPA 200.8	N/A
Iron	3.78		0.500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	464		1.00	mg/L	SM 2540 D	N/A
pH	7.33	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS2-I-180301 (18-03-0135-2)						
HEM - SGT: Oil and Grease	2.0		1.0	mg/L	EPA 1664A	N/A
Copper	0.0116		0.0100	mg/L	EPA 200.8	N/A
Lead	0.0237		0.0100	mg/L	EPA 200.8	N/A
Zinc	0.313		0.0500	mg/L	EPA 200.8	N/A
Aluminum	1.18		0.500	mg/L	EPA 200.8	N/A
Iron	2.23		0.500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	214		1.00	mg/L	SM 2540 D	N/A
pH	7.19	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS3-I-180301 (18-03-0135-3)						
HEM - SGT: Oil and Grease	1.4		1.0	mg/L	EPA 1664A	N/A
Copper	0.00888		0.00100	mg/L	EPA 200.8	N/A
Lead	0.0286		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.141		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.167		0.0500	mg/L	EPA 200.8	N/A
Iron	0.315		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	23		1.0	mg/L	SM 2540 D	N/A
pH	7.06	BV,BU	0.01	pH units	SM 4500 H+ B	N/A
TS4-I-180301 (18-03-0135-4)						
Copper	0.00455		0.00100	mg/L	EPA 200.8	N/A
Lead	0.00688		0.00100	mg/L	EPA 200.8	N/A
Zinc	0.0640		0.00500	mg/L	EPA 200.8	N/A
Aluminum	0.163		0.0500	mg/L	EPA 200.8	N/A
Iron	0.206		0.0500	mg/L	EPA 200.8	N/A
Solids, Total Suspended	8.8		1.0	mg/L	SM 2540 D	N/A
pH	6.82	BV,BU	0.01	pH units	SM 4500 H+ B	N/A

Subcontracted analyses, if any, are not included in this summary.

* MDL is shown

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 1664A
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180301	18-03-0135-1-B	03/01/18 08:29	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	2.4	1.0	0.81	1.00	

TS2-I-180301	18-03-0135-2-B	03/01/18 09:03	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	2.0	1.0	0.81	1.00	

TS3-I-180301	18-03-0135-3-B	03/01/18 09:24	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	1.4	1.0	0.81	1.00	

TS4-I-180301	18-03-0135-4-B	03/01/18 09:32	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

Method Blank	099-16-927-98	N/A	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEML2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
HEM - SGT: Oil and Grease	ND	1.0	0.81	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
 45 Polk Street, 3rd floor
 San Francisco, CA 94102-5260

Date Received: 03/02/18
 Work Order: 18-03-0135
 Preparation: N/A
 Method: SM 2540 D
 Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180301	18-03-0135-1-A	03/01/18 08:29	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	464	1.00	0.829	1.00	

TS2-I-180301	18-03-0135-2-A	03/01/18 09:03	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	214	1.00	0.829	1.00	

TS3-I-180301	18-03-0135-3-A	03/01/18 09:24	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	23	1.0	0.83	1.00	

TS4-I-180301	18-03-0135-4-A	03/01/18 09:32	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	8.8	1.0	0.83	1.00	

Method Blank	099-09-010-8946	N/A	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Solids, Total Suspended	ND	1.0	0.83	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: SM 4500 H+ B
Units: pH units

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 1 of 1

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180301	18-03-0135-1-A	03/01/18 08:29	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.33	0.01	0.01	1.00	BV,BU

TS2-I-180301	18-03-0135-2-A	03/01/18 09:03	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.19	0.01	0.01	1.00	BV,BU

TS3-I-180301	18-03-0135-3-D	03/01/18 09:24	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	7.06	0.01	0.01	1.00	BV,BU

TS4-I-180301	18-03-0135-4-A	03/01/18 09:32	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
pH	6.82	0.01	0.01	1.00	BV,BU

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS1-I-180301	18-03-0135-1-C	03/01/18 08:29	Aqueous	ICP/MS 05	03/06/18	03/07/18 22:54	180306LA3

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.0323	0.0100	0.00140	10.0	
Lead	0.129	0.0100	0.000898	10.0	
Zinc	0.516	0.0500	0.00479	10.0	
Aluminum	1.35	0.500	0.0331	10.0	
Iron	3.78	0.500	0.0926	10.0	

TS2-I-180301	18-03-0135-2-C	03/01/18 09:03	Aqueous	ICP/MS 05	03/06/18	03/07/18 22:57	180306LA3
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.0116	0.0100	0.00140	10.0	
Lead	0.0237	0.0100	0.000898	10.0	
Zinc	0.313	0.0500	0.00479	10.0	
Aluminum	1.18	0.500	0.0331	10.0	
Iron	2.23	0.500	0.0926	10.0	

TS3-I-180301	18-03-0135-3-C	03/01/18 09:24	Aqueous	ICP/MS 05	03/06/18	03/07/18 22:59	180306LA3
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>MDL</u>	<u>DF</u>	<u>Qualifiers</u>
Copper	0.00888	0.00100	0.000140	1.00	
Lead	0.0286	0.00100	0.0000898	1.00	
Zinc	0.141	0.00500	0.000479	1.00	
Aluminum	0.167	0.0500	0.00331	1.00	
Iron	0.315	0.0500	0.00926	1.00	

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 200.8
Units: mg/L

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

Page 2 of 2

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
TS4-I-180301	18-03-0135-4-C	03/01/18 09:32	Aqueous	ICP/MS 05	03/06/18	03/07/18 23:02	180306LA3

Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	0.00455	0.00100	0.000140	1.00	
Lead	0.00688	0.00100	0.0000898	1.00	
Zinc	0.0640	0.00500	0.000479	1.00	
Aluminum	0.163	0.0500	0.00331	1.00	
Iron	0.206	0.0500	0.00926	1.00	

Method Blank	099-16-094-2229	N/A	Aqueous	ICP/MS 03	03/06/18	03/08/18 13:32	180306LA3
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Comment(s): - Results were evaluated to the MDL (DL), concentrations \geq to the MDL (DL) but $<$ RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qualifiers
Copper	ND	0.00100	0.000140	1.00	
Lead	ND	0.00100	0.0000898	1.00	
Zinc	ND	0.00500	0.000479	1.00	
Aluminum	ND	0.0500	0.00331	1.00	
Iron	ND	0.0500	0.00926	1.00	



 Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-03-0136-1	Sample	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2
18-03-0136-1	Matrix Spike	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2
18-03-0136-1	Matrix Spike Duplicate	Aqueous	N/A	03/09/18	03/09/18 14:45	I0309HEMS2

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
HEM - SGT: Oil and Grease	ND	20.00	15.10	76	17.60	88	64-132	15	0-34	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
18-03-0024-13	Sample	Aqueous	ICP/MS 03	03/06/18	03/08/18 14:20	180306SA3
18-03-0024-13	Matrix Spike	Aqueous	ICP/MS 03	03/06/18	03/08/18 14:15	180306SA3
18-03-0024-13	Matrix Spike Duplicate	Aqueous	ICP/MS 03	03/06/18	03/08/18 14:17	180306SA3

Parameter	Sample Conc.	Spike Added	MS Conc.	MS %Rec.	MSD Conc.	MSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Copper	ND	0.1000	0.09993	100	0.09764	98	80-120	2	0-20	
Lead	ND	0.1000	0.1124	112	0.1093	109	80-120	3	0-20	
Zinc	ND	0.1000	0.1717	172	0.1069	107	80-120	46	0-20	3,4
Aluminum	ND	0.1000	0.1309	131	0.1183	118	80-120	10	0-20	3
Iron	ND	5.100	5.099	100	4.897	96	80-120	4	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

Page 1 of 2

Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-03-0023-2	Sample	Aqueous	N/A	03/07/18 00:00	03/07/18 13:30	I0307TSSD1
18-03-0023-2	Sample Duplicate	Aqueous	N/A	03/07/18 00:00	03/07/18 13:30	I0307TSSD1

<u>Parameter</u>	<u>Sample Conc.</u>	<u>DUP Conc.</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
Solids, Total Suspended	958.0	912.0	5	0-20	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Sample Duplicate

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: SM 4500 H+ B

Project: LRTC Annual Storm Water Sampling / 101-002-
LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	Duplicate Batch Number
18-03-0136-1	Sample	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2
18-03-0136-1	Sample Duplicate	Aqueous	PH 1	N/A	03/02/18 21:49	I0302PHD2

Parameter	Sample Conc.	DUP Conc.	RPD	RPD CL	Qualifiers
pH	7.150	7.480	5	0-25	

Return to Contents

RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 1664A

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix		Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-16-927-98	LCS	Aqueous		N/A	03/09/18	03/09/18 14:45	I0309HEML2			
099-16-927-98	LCSD	Aqueous		N/A	03/09/18	03/09/18 14:45	I0309HEML2			
<u>Parameter</u>	<u>Spike Added</u>	<u>LCS</u>	<u>Conc.</u>	<u>LCS</u> <u>%Rec.</u>	<u>LCSD Conc.</u>	<u>LCSD</u> <u>%Rec.</u>	<u>%Rec. CL</u>	<u>RPD</u>	<u>RPD CL</u>	<u>Qualifiers</u>
HEM - SGT: Oil and Grease	20.00	17.70		88	16.40	82	64-132	8	0-34	

Quality Control - LCS/LCSD

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: SM 2540 D

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number			
099-09-010-8946	LCS	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1			
099-09-010-8946	LCSD	Aqueous	N/A	03/07/18	03/07/18 13:30	I0307TSSL1			
Parameter	Spike Added	LCS Conc.	LCS %Rec.	LCSD Conc.	LCSD %Rec.	%Rec. CL	RPD	RPD CL	Qualifiers
Solids, Total Suspended	100.0	97.00	97	93.00	93	80-120	4	0-20	

Quality Control - LCS

CDIM Engineering
45 Polk Street, 3rd floor
San Francisco, CA 94102-5260

Date Received: 03/02/18
Work Order: 18-03-0135
Preparation: N/A
Method: EPA 200.8

Project: LRTC Annual Storm Water Sampling / 101-002-LRTC, Task 1

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Quality Control Sample ID	Type	Matrix	Instrument	Date Prepared	Date Analyzed	LCS Batch Number
099-16-094-2229	LCS	Aqueous	ICP/MS 03	03/06/18	03/08/18 14:02	180306LA3
<u>Parameter</u>		<u>Spike Added</u>	<u>Conc. Recovered</u>	<u>LCS %Rec.</u>	<u>%Rec. CL</u>	<u>Qualifiers</u>
Copper		0.1000	0.1062	106	80-120	
Lead		0.1000	0.1105	111	80-120	
Zinc		0.1000	0.1101	110	80-120	
Aluminum		0.1000	0.1083	108	80-120	
Iron		5.100	5.416	106	80-120	

Sample Analysis Summary Report

Work Order: 18-03-0135

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<u>Method</u>	<u>Extraction</u>	<u>Chemist ID</u>	<u>Instrument</u>	<u>Analytical Location</u>
EPA 1664A	N/A	784	N/A	1
EPA 200.8	N/A	598	ICP/MS 05	1
SM 2540 D	N/A	1136	N/A	1
SM 4500 H+ B	N/A	1086	PH 1	1

Glossary of Terms and Qualifiers

Work Order: 18-03-0135

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<u>Qualifiers</u>	<u>Definition</u>
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control.
4	The MS/MSD RPD was out of control due to suspected matrix interference.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
BV	Sample received after holding time expired.
CI	See case narrative.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
HDH	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected).
HDL	The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected).
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
JA	Analyte positively identified but quantitation is an estimate.
ME	LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean).
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.
	Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.
	Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of <= 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.
	A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Chain of Custody Record

CalScience Environmental Lab
5063 Commercial Circle, Suite H
Concord, CA 94520
Phone: 925-689-9022

Please send analytic results, electronic deliverables and the original chain-of-custody form to:

sab@cdlimengineering.com
mec@cdlimengineering.com
177cdlimengineering.com

INSTRUCTIONS FOR LAB PERSONNEL:

GeoTracker EDF required? o Yes x No
Equis 4-file EDWEDD required? x Yes o No
Specify analytic/prep method and detection limit in report.
Notify us of any anomalous peaks in GC or other scans.
Call immediately with any questions or problems.

18-03-0135

[illegible]



800-322-5555
www.gso.com

0135

Ship From

CAL SCIENCE- CONCORD
ALAN KEMP
5063 COMMERCIAL CIRCLE
#H
CONCORD, CA 94520

Tracking #: 539646325**NPS****Ship To**

CEL
SAMPLE RECEIVING
7440 LINCOLN WAY
GARDEN GROVE, CA 92841

**ORC
GARDEN GROVE****A**

COD: \$0.00

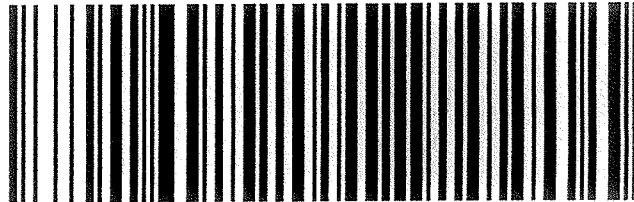
Weight: 0 lb(s)

Reference:

CDIM

Delivery Instructions:

Signature Type: STANDARD

D92845A

80237855

Print Date: 3/1/2018 12:05 PM

LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

Step 1: Use the "Print Label" button on this page to print the shipping label on a laser or inkjet printer.

Step 2: Fold this page in half.

Step 3: Securely attach this label to your package and do not cover the barcode.

TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all of the GSO service terms & conditions including, but not limited to; limits of liability, declared value conditions, and claim procedures which are available on our website at www.gso.com.

SAMPLE RECEIPT CHECKLIST

COOLER 1 OF 1

CLIENT: CDIM Eng'g.

DATE: 03/02/2018

TEMPERATURE: (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Thermometer ID: SC6 (CF: +0.2°C); Temperature (w/o CF): 1.6 °C (w/ CF): 1.8 °C; ☒ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____)

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling

☐ Sample(s) received at ambient temperature; placed on ice for transport by courier

Ambient Temperature: ☐ Air ☐ Filter

Checked by: 836

CUSTODY SEAL:

Cooler ☒ Present and Intact ☐ Present but Not Intact ☐ Not Present ☐ N/A

Checked by: 836

Sample(s) ☐ Present and Intact ☐ Present but Not Intact ☒ Not Present ☐ N/A

Checked by: ulin

SAMPLE CONDITION:

	Yes	No	N/A
Chain-of-Custody (COC) document(s) received with samples	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC document(s) received complete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sampling date <input type="checkbox"/> Sampling time <input type="checkbox"/> Matrix <input type="checkbox"/> Number of containers			
<input type="checkbox"/> No analysis requested <input type="checkbox"/> Not relinquished <input type="checkbox"/> No relinquished date <input type="checkbox"/> No relinquished time			
Sampler's name indicated on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container label(s) consistent with COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample container(s) intact and in good condition	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proper containers for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sufficient volume/mass for analyses requested	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within holding time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aqueous samples for certain analyses received within 15-minute holding time			
<input checked="" type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfide <input type="checkbox"/> Dissolved Oxygen	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Proper preservation chemical(s) noted on COC and/or sample container	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unpreserved aqueous sample(s) received for certain analyses			
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Total Metals <input type="checkbox"/> Dissolved Metals			
Acid/base preserved samples - pH within acceptable range	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Container(s) for certain analysis free of headspace	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Volatile Organics <input type="checkbox"/> Dissolved Gases (RSK-175) <input type="checkbox"/> Dissolved Oxygen (SM 4500)			
<input type="checkbox"/> Carbon Dioxide (SM 4500) <input type="checkbox"/> Ferrous Iron (SM 3500) <input type="checkbox"/> Hydrogen Sulfide (Hach)			
Tedlar™ bag(s) free of condensation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

CONTAINER TYPE:

(Trip Blank Lot Number: _____)

Aqueous: ☐ VOA ☐ VOAh ☐ VOAna₂ ☐ 100PJ ☐ 100PJna₂ ☐ 125AGB ☐ 125AGBh ☐ 125AGBp ☒ 125PB ☐ 125PBz_{na} (pH__9)

☐ 250AGB ☐ 250CGB ☐ 250CGBs (pH__2) ☐ 250PB ☒ 250PBn (pH__2) ☐ 500AGB ☐ 500AGJ ☐ 500AGJs (pH__2) ☐ 500PB

☐ 1AGB ☐ 1AGBna₂ ☐ 1AGBs (pH__2) ☒ 1AGBs (O&G) ☐ 1PB ☐ 1PBna (pH__12) ☐ _____ ☐ _____ ☐ _____

Solid: ☐ 4ozCGJ ☐ 8ozCGJ ☐ 16ozCGJ ☐ Sleeve (____) ☐ EnCores® (____) ☐ TerraCores® (____) ☐ _____ ☐ _____ ☐ _____

Air: ☐ Tedlar™ ☐ Canister ☐ Sorbent Tube ☐ PUF ☐ _____ **Other Matrix** (____): ☐ _____ ☐ _____ ☐ _____

Container: **A** = Amber, **B** = Bottle, **C** = Clear, **E** = Envelope, **G** = Glass, **J** = Jar, **P** = Plastic, and **Z** = Ziploc/Resealable Bag

Preservative: **b** = buffered, **f** = filtered, **h** = HCl, **n** = HNO₃, **na** = NaOH, **na₂** = Na₂S₂O₃, **p** = H₃PO₄, Labeled/Checked by: ulin

s = H₂SO₄, **u** = ultra-pure, **x** = Na₂SO₃+NaHSO₄.H₂O, **z_{na}** = Zn (CH₃CO₂)₂ + NaOH

Reviewed by: lin



March 27, 2018

Vista Work Order No. 1800396

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 02, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800396**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC and field samples were within method acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800396-01	TS2-E-180301	01-Mar-18 09:08	02-Mar-18 10:13	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8C0047			Lab Sample: B8C0047-BLK1				
Sample Size: 1.00 L		Date Extracted: 07-Mar-2018 11:40			Date Analyzed: 20-Mar-18 17:37 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
Hexachlorobenzene	5.25			J	IS	13C6-Hexachlorobenzene	61.7	5 - 120	
alpha-BHC	ND	9.61			IS	13C6-alpha-BHC	77.9	32 - 130	
Lindane (gamma-BHC)	ND	14.2			IS	13C6-Lindane (gamma-BHC)	81.7	11 - 120	
beta-BHC	ND	12.2			IS	13C6-beta-BHC	82.7	32 - 130	
delta-BHC	ND	9.79			IS	13C6-delta-BHC	83.9	36 - 137	
Heptachlor	ND	1.21			IS	13C10-Heptachlor	84.5	5 - 120	
Aldrin	ND	4.59			IS	13C12-Aldrin	78.0	5 - 120	
Oxychlordane	ND	14.0			IS	13C10-Oxychlordane	92.0	23 - 135	
cis-Heptachlor Epoxide	ND	10.6			IS	13C10-cis-Heptachlor Epoxide	90.3	27 - 137	
trans-Heptachlor Epoxide	ND	37.7			IS	13C10-trans-Chlordane (gamma)	88.0	21 - 132	
trans-Chlordane (gamma)	ND	12.8			IS	13C10-trans-Nonachlor	86.7	14 - 136	
trans-Nonachlor	ND	13.2			IS	13C9-Endosulfan I (alpha)	84.7	15 - 148	
cis-Chlordane (alpha)	ND	11.8			IS	13C12-2,4'-DDE	80.2	47 - 160	
Endosulfan I (alpha)	ND	17.0			IS	13C12-4,4'-DDE	84.2	47 - 160	
2,4'-DDE	ND	5.47			IS	13C12-Dieldrin	88.7	40 - 151	
4,4'-DDE	ND	6.30			IS	13C12-Endrin	109	35 - 155	
Dieldrin	ND	8.46			IS	13C10-cis-Nonachlor	85.7	36 - 139	
Endrin	ND	11.6			IS	13C9-Endosulfan II (beta)	78.7	5 - 122	
cis-Nonachlor	ND	15.0			IS	13C12-2,4'-DDD	83.9	5 - 199	
Endosulfan II (beta)	ND	45.6			IS	13C12-2,4'-DDT	85.3	5 - 199	
2,4'-DDD	ND	6.98			IS	13C12-4,4'-DDD	83.4	5 - 120	
2,4'-DDT	ND	11.3			IS	13C12-4,4'-DDT	86.8	5 - 120	
4,4'-DDD	ND	6.79			IS	13C9-Endosulfan Sulfate	99.6	15 - 148	
4,4'-DDT	ND	10.2			IS	13C12-Methoxychlor	88.7	5 - 120	
Endosulfan Sulfate	ND	25.3			IS	13C10-Mirex	74.8	5 - 120	
4,4'-Methoxychlor	ND	5.05			IS	13C12-Endrin Aldehyde	64.4	15 - 148	
Mirex	ND	3.97			IS	13C12-Endrin Ketone	83.6	15 - 148	
Endrin Aldehyde	ND	8.76							
Endrin Ketone	ND	13.9							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8C0047			Lab Sample: B8C0047-BS1			
Sample Size: 1.00 L		Date Extracted: 07-Mar-2018 11:40			Date Analyzed: 20-Mar-18 15:12 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	997	1000	99.7	50 - 120	IS	13C6-Hexachlorobenzene	60.9	5 - 120
alpha-BHC	1010	1000	101	50 - 120	IS	13C6-alpha-BHC	74.6	17 - 141
Lindane (gamma-BHC)	952	1000	95.2	50 - 120	IS	13C6-Lindane (gamma-BHC)	80.9	5 - 124
beta-BHC	940	1000	94.0	50 - 120	IS	13C6-beta-BHC	84.2	17 - 141
delta-BHC	915	1000	91.5	50 - 120	IS	13C6-delta-BHC	87.2	16 - 150
Heptachlor	991	1000	99.1	50 - 120	IS	13C10-Heptachlor	83.6	5 - 128
Aldrin	978	1000	97.8	50 - 120	IS	13C12-Aldrin	74.0	5 - 126
Oxychlordane	890	1000	89.0	50 - 120	IS	13C10-Oxychlordane	89.7	5 - 144
cis-Heptachlor Epoxide	948	1000	94.8	50 - 120	IS	13C10-cis-Heptachlor Epoxide	94.5	8 - 146
trans-Heptachlor Epoxide	897	1000	89.7	50 - 120	IS	13C10-trans-Chlordane (gamma)	85.2	15 - 144
trans-Chlordane (gamma)	1020	1000	102	50 - 120	IS	13C10-trans-Nonachlor	88.9	13 - 149
trans-Nonachlor	926	1000	92.6	50 - 120	IS	13C9-Endosulfan I (alpha)	96.6	5 - 144
cis-Chlordane (alpha)	960	1000	96.0	50 - 120	IS	13C12-2,4'-DDE	91.2	26 - 169
Endosulfan I (alpha)	892	1000	89.2	50 - 120	IS	13C12-4,4'-DDE	94.4	26 - 169
2,4'-DDE	992	1000	99.2	24 - 123	IS	13C12-Dieldrin	103	19 - 161
4,4'-DDE	979	1000	97.9	50 - 120	IS	13C12-Endrin	144	20 - 157
Dieldrin	924	1000	92.4	50 - 120	IS	13C10-cis-Nonachlor	105	17 - 154
Endrin	907	1000	90.7	50 - 120	IS	13C9-Endosulfan II (beta)	108	5 - 120
cis-Nonachlor	885	1000	88.5	50 - 120	IS	13C12-2,4'-DDD	97.8	14 - 200
Endosulfan II (beta)	1010	1000	101	5 - 200	IS	13C12-2,4'-DDT	103	14 - 200
2,4'-DDD	986	1000	98.6	50 - 120	IS	13C12-4,4'-DDD	103	14 - 200
2,4'-DDT	1030	1000	103	50 - 120	IS	13C12-4,4'-DDT	113	13 - 200
4,4'-DDD	984	1000	98.4	42 - 120	IS	13C9-Endosulfan Sulfate	112	5 - 144
4,4'-DDT	974	1000	97.4	50 - 120	IS	13C12-Methoxychlor	122	8 - 200
Endosulfan Sulfate	831	1000	83.1	50 - 120	IS	13C10-Mirex	101	5 - 138
4,4'-Methoxychlor	961	1000	96.1	50 - 120	IS	13C12-Endrin Aldehyde	74.9	5 - 144
Mirex	965	1000	96.5	50 - 120	IS	13C12-Endrin Ketone	109	5 - 144
Endrin Aldehyde	832	1000	83.2	50 - 134				
Endrin Ketone	810	1000	81.0	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-E-180301					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800396-01	Date Received:	02-Mar-2018 10:13
Project:	101-002-LRTC, Task 1		Sample Size:	1.000 L	QC Batch:	B8C0047	Date Extracted:	07-Mar-2018 11:40
Date Collected:	01-Mar-2018 9:08				Date Analyzed:	20-Mar-18 19:14 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	8.96			J, B	IS 13C6-Hexachlorobenzene	66.2	5 - 120	
alpha-BHC	46.3				IS 13C6-alpha-BHC	75.2	32 - 130	
Lindane (gamma-BHC)	39.6			J	IS 13C6-Lindane (gamma-BHC)	82.0	11 - 120	
beta-BHC	25.7			J	IS 13C6-beta-BHC	86.9	32 - 130	
delta-BHC	ND	8.15			IS 13C6-delta-BHC	86.6	36 - 137	
Heptachlor	ND	1.91			IS 13C10-Heptachlor	96.8	5 - 120	
Aldrin	ND	7.94			IS 13C12-Aldrin	85.0	5 - 120	
Oxychlordane	ND	26.1			IS 13C10-Oxychlordane	91.2	23 - 135	
cis-Heptachlor Epoxide	ND	18.2			IS 13C10-cis-Heptachlor Epoxide	102	27 - 137	
trans-Heptachlor Epoxide	ND	64.4			IS 13C10-trans-Chlordane (gamma)	87.7	21 - 132	
trans-Chlordane (gamma)	ND	26.2			IS 13C10-trans-Nonachlor	93.5	14 - 136	
trans-Nonachlor	ND	21.8			IS 13C9-Endosulfan I (alpha)	93.4	15 - 148	
cis-Chlordane (alpha)	ND		33.4		IS 13C12-2,4'-DDE	85.0	47 - 160	
Endosulfan I (alpha)	ND	27.6			IS 13C12-4,4'-DDE	88.6	47 - 160	
2,4'-DDE	ND	4.06			IS 13C12-Dieldrin	91.1	40 - 151	
4,4'-DDE	17.6			J	IS 13C12-Endrin	117	35 - 155	
Dieldrin	519				IS 13C10-cis-Nonachlor	89.6	36 - 139	
Endrin	256				IS 13C9-Endosulfan II (beta)	84.7	5 - 122	
cis-Nonachlor	ND	12.0			IS 13C12-2,4'-DDD	88.4	5 - 199	
Endosulfan II (beta)	ND	36.3			IS 13C12-2,4'-DDT	91.9	5 - 199	
2,4'-DDD	29.6			J	IS 13C12-4,4'-DDD	90.4	5 - 120	
2,4'-DDT	ND	7.18			IS 13C12-4,4'-DDT	95.5	5 - 120	
4,4'-DDD	37.6			J	IS 13C9-Endosulfan Sulfate	96.5	15 - 148	
4,4'-DDT	26.2			J	IS 13C12-Methoxychlor	95.5	5 - 120	
Endosulfan Sulfate	ND	26.2			IS 13C10-Mirex	78.3	5 - 120	
4,4'-Methoxychlor	ND	5.52			IS 13C12-Endrin Aldehyde	61.8	15 - 148	
Mirex	ND	2.79			IS 13C12-Endrin Ketone	88.5	15 - 148	
Endrin Aldehyde	ND	11.5						
Endrin Ketone	229							

DL - Sample specific estimated detection limit

LCL-UCL - Lower control limit - upper control limit

EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Sample Log-in Checklist

 Vista Work Order #: 1800396 TAT Std

Samples Arrival:	Date/Time 03/02/18 1013	Initials: HL	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 03/02/18 1527	Initials: SR JAB	Location: WR-2
			Shelf/Rack: A3
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
	<input type="radio"/> GSO	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
Temp °C: 2.1 (uncorrected)	Time: 1020		Thermometer ID: IR-4
Temp °C: 2.0 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received? <u>A,B,C</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shipping Custody Seals Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Airbill <u>Trk # 7716 6969 0999</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Container Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Custody Seals Intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COC Anomaly/Sample Acceptance Form completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Preservation Documented:	<input checked="" type="radio"/> Na ₂ S ₂ O ₃	<input type="radio"/> Trizma	<input checked="" type="radio"/> None
	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input checked="" type="radio"/> NA
Shipping Container	<input type="radio"/> Vista	<input checked="" type="radio"/> Client	<input type="radio"/> Retain
	<input type="radio"/> Return	<input type="radio"/> Dispose	

Comments:



March 28, 2018

Vista Work Order No. 1800398

Mr. Scott Bourne
CDIM Engineering
45 Polk Street, 3rd Floor
San Francisco, CA 94102

Dear Mr. Bourne,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on March 02, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name '101-002-LRTC, Task 1'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director



Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1800398**Case Narrative****Sample Condition on Receipt:**

One water sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:**EPA Method 1699**

The sample was extracted and analyzed for chlorinated pesticides by EPA Method 1699 using a ZB-50 GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limits in the Method Blank. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the method acceptance criteria are listed in the table below:

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800398-01	TS2-I-180301	EPA Method 1699	13C12-2,4'-DDE	H	40.3
1800398-01	TS2-I-180301	EPA Method 1699	13C12-4,4'-DDE	H	30.2
1800398-01	TS2-I-180301	EPA Method 1699	13C12-Dieldrin	H	36.2
1800398-01	TS2-I-180301	EPA Method 1699	13C10-cis-Nonachlor	H	26.8
1800398-01	TS2-I-180301	EPA Method 1699	13C12-Endrin Aldehyde	H	8.50
1800398-01	TS2-I-180301	EPA Method 1699	13C12-Endrin Ketone	H	11.8

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800398-01	TS2-I-180301	01-Mar-18 09:03	02-Mar-18 10:13	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank					EPA Method 1699				
Matrix: Aqueous		QC Batch: B8C0047			Lab Sample: B8C0047-BLK1				
Sample Size: 1.00 L		Date Extracted: 07-Mar-2018 11:40			Date Analyzed: 20-Mar-18 17:37 Column: ZB-50				
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
Hexachlorobenzene	5.25			J	IS	13C6-Hexachlorobenzene	61.7	5 - 120	
alpha-BHC	ND	9.61			IS	13C6-alpha-BHC	77.9	32 - 130	
Lindane (gamma-BHC)	ND	14.2			IS	13C6-Lindane (gamma-BHC)	81.7	11 - 120	
beta-BHC	ND	12.2			IS	13C6-beta-BHC	82.7	32 - 130	
delta-BHC	ND	9.79			IS	13C6-delta-BHC	83.9	36 - 137	
Heptachlor	ND	1.21			IS	13C10-Heptachlor	84.5	5 - 120	
Aldrin	ND	4.59			IS	13C12-Aldrin	78.0	5 - 120	
Oxychlordane	ND	14.0			IS	13C10-Oxychlordane	92.0	23 - 135	
cis-Heptachlor Epoxide	ND	10.6			IS	13C10-cis-Heptachlor Epoxide	90.3	27 - 137	
trans-Heptachlor Epoxide	ND	37.7			IS	13C10-trans-Chlordane (gamma)	88.0	21 - 132	
trans-Chlordane (gamma)	ND	12.8			IS	13C10-trans-Nonachlor	86.7	14 - 136	
trans-Nonachlor	ND	13.2			IS	13C9-Endosulfan I (alpha)	84.7	15 - 148	
cis-Chlordane (alpha)	ND	11.8			IS	13C12-2,4'-DDE	80.2	47 - 160	
Endosulfan I (alpha)	ND	17.0			IS	13C12-4,4'-DDE	84.2	47 - 160	
2,4'-DDE	ND	5.47			IS	13C12-Dieldrin	88.7	40 - 151	
4,4'-DDE	ND	6.30			IS	13C12-Endrin	109	35 - 155	
Dieldrin	ND	8.46			IS	13C10-cis-Nonachlor	85.7	36 - 139	
Endrin	ND	11.6			IS	13C9-Endosulfan II (beta)	78.7	5 - 122	
cis-Nonachlor	ND	15.0			IS	13C12-2,4'-DDD	83.9	5 - 199	
Endosulfan II (beta)	ND	45.6			IS	13C12-2,4'-DDT	85.3	5 - 199	
2,4'-DDD	ND	6.98			IS	13C12-4,4'-DDD	83.4	5 - 120	
2,4'-DDT	ND	11.3			IS	13C12-4,4'-DDT	86.8	5 - 120	
4,4'-DDD	ND	6.79			IS	13C9-Endosulfan Sulfate	99.6	15 - 148	
4,4'-DDT	ND	10.2			IS	13C12-Methoxychlor	88.7	5 - 120	
Endosulfan Sulfate	ND	25.3			IS	13C10-Mirex	74.8	5 - 120	
4,4'-Methoxychlor	ND	5.05			IS	13C12-Endrin Aldehyde	64.4	15 - 148	
Mirex	ND	3.97			IS	13C12-Endrin Ketone	83.6	15 - 148	
Endrin Aldehyde	ND	8.76							
Endrin Ketone	ND	13.9							

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR

EPA Method 1699

Matrix: Aqueous		QC Batch: B8C0047			Lab Sample: B8C0047-BS1			
Sample Size: 1.00 L		Date Extracted: 07-Mar-2018 11:40			Date Analyzed: 20-Mar-18 15:12 Column: ZB-50			
Analyte	Amt Found (pg/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
Hexachlorobenzene	997	1000	99.7	50 - 120	IS	13C6-Hexachlorobenzene	60.9	5 - 120
alpha-BHC	1010	1000	101	50 - 120	IS	13C6-alpha-BHC	74.6	17 - 141
Lindane (gamma-BHC)	952	1000	95.2	50 - 120	IS	13C6-Lindane (gamma-BHC)	80.9	5 - 124
beta-BHC	940	1000	94.0	50 - 120	IS	13C6-beta-BHC	84.2	17 - 141
delta-BHC	915	1000	91.5	50 - 120	IS	13C6-delta-BHC	87.2	16 - 150
Heptachlor	991	1000	99.1	50 - 120	IS	13C10-Heptachlor	83.6	5 - 128
Aldrin	978	1000	97.8	50 - 120	IS	13C12-Aldrin	74.0	5 - 126
Oxychlordane	890	1000	89.0	50 - 120	IS	13C10-Oxychlordane	89.7	5 - 144
cis-Heptachlor Epoxide	948	1000	94.8	50 - 120	IS	13C10-cis-Heptachlor Epoxide	94.5	8 - 146
trans-Heptachlor Epoxide	897	1000	89.7	50 - 120	IS	13C10-trans-Chlordane (gamma)	85.2	15 - 144
trans-Chlordane (gamma)	1020	1000	102	50 - 120	IS	13C10-trans-Nonachlor	88.9	13 - 149
trans-Nonachlor	926	1000	92.6	50 - 120	IS	13C9-Endosulfan I (alpha)	96.6	5 - 144
cis-Chlordane (alpha)	960	1000	96.0	50 - 120	IS	13C12-2,4'-DDE	91.2	26 - 169
Endosulfan I (alpha)	892	1000	89.2	50 - 120	IS	13C12-4,4'-DDE	94.4	26 - 169
2,4'-DDE	992	1000	99.2	24 - 123	IS	13C12-Dieldrin	103	19 - 161
4,4'-DDE	979	1000	97.9	50 - 120	IS	13C12-Endrin	144	20 - 157
Dieldrin	924	1000	92.4	50 - 120	IS	13C10-cis-Nonachlor	105	17 - 154
Endrin	907	1000	90.7	50 - 120	IS	13C9-Endosulfan II (beta)	108	5 - 120
cis-Nonachlor	885	1000	88.5	50 - 120	IS	13C12-2,4'-DDD	97.8	14 - 200
Endosulfan II (beta)	1010	1000	101	5 - 200	IS	13C12-2,4'-DDT	103	14 - 200
2,4'-DDD	986	1000	98.6	50 - 120	IS	13C12-4,4'-DDD	103	14 - 200
2,4'-DDT	1030	1000	103	50 - 120	IS	13C12-4,4'-DDT	113	13 - 200
4,4'-DDD	984	1000	98.4	42 - 120	IS	13C9-Endosulfan Sulfate	112	5 - 144
4,4'-DDT	974	1000	97.4	50 - 120	IS	13C12-Methoxychlor	122	8 - 200
Endosulfan Sulfate	831	1000	83.1	50 - 120	IS	13C10-Mirex	101	5 - 138
4,4'-Methoxychlor	961	1000	96.1	50 - 120	IS	13C12-Endrin Aldehyde	74.9	5 - 144
Mirex	965	1000	96.5	50 - 120	IS	13C12-Endrin Ketone	109	5 - 144
Endrin Aldehyde	832	1000	83.2	50 - 134				
Endrin Ketone	810	1000	81.0	50 - 134				

LCL-UCL - Lower control limit - upper control limit

Sample ID: TS2-I-180301					EPA Method 1699			
Client Data			Sample Data		Laboratory Data			
Name:	CDIM Engineering		Matrix:	Water	Lab Sample:	1800398-01	Date Received:	02-Mar-2018 10:13
Project:	101-002-LRTC, Task 1		Sample Size:	1.04 L	QC Batch:	B8C0047	Date Extracted:	07-Mar-2018 11:40
Date Collected:	01-Mar-2018 9:03				Date Analyzed:	20-Mar-18 20:03 Column: ZB-50		
						22-Mar-18 23:52 Column: ZB-50		
Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
Hexachlorobenzene	1930			B, D	IS 13C6-Hexachlorobenzene	78.9	5 - 120	D
alpha-BHC	67.5				IS 13C6-alpha-BHC	122	32 - 130	
Lindane (gamma-BHC)	79.5				IS 13C6-Lindane (gamma-BHC)	94.2	11 - 120	
beta-BHC	ND	53.5			IS 13C6-beta-BHC	56.3	32 - 130	
delta-BHC	ND	61.3			IS 13C6-delta-BHC	55.8	36 - 137	
Heptachlor	ND	23.4			IS 13C10-Heptachlor	91.1	5 - 120	
Aldrin	ND	64.8			IS 13C12-Aldrin	37.2	5 - 120	
Oxychlordane	ND	108			IS 13C10-Oxychlordane	63.5	23 - 135	
cis-Heptachlor Epoxide	ND	109			IS 13C10-cis-Heptachlor Epoxide	60.3	27 - 137	
trans-Heptachlor Epoxide	ND	385			IS 13C10-trans-Chlordane (gamma)	44.7	21 - 132	
trans-Chlordane (gamma)	486				IS 13C10-trans-Nonachlor	32.7	14 - 136	
trans-Nonachlor	ND	218			IS 13C9-Endosulfan I (alpha)	50.6	15 - 148	
cis-Chlordane (alpha)	887				IS 13C12-2,4'-DDE	40.3	47 - 160	H
Endosulfan I (alpha)	ND	218			IS 13C12-4,4'-DDE	30.2	47 - 160	H
2,4'-DDE	417				IS 13C12-Dieldrin	36.2	40 - 151	H
4,4'-DDE	6960				IS 13C12-Endrin	36.3	35 - 155	
Dieldrin	1720				IS 13C10-cis-Nonachlor	26.8	36 - 139	H
Endrin	1180				IS 13C9-Endosulfan II (beta)	20.7	5 - 122	
cis-Nonachlor	ND	365			IS 13C12-2,4'-DDD	23.8	5 - 199	
Endosulfan II (beta)	ND	1300			IS 13C12-2,4'-DDT	14.6	5 - 199	
2,4'-DDD	1500				IS 13C12-4,4'-DDD	16.4	5 - 120	
2,4'-DDT	3840				IS 13C12-4,4'-DDT	10.7	5 - 120	
4,4'-DDD	2690				IS 13C9-Endosulfan Sulfate	25.2	15 - 148	
4,4'-DDT	14400				IS 13C12-Methoxychlor	10.2	5 - 120	
Endosulfan Sulfate	ND	1050			IS 13C10-Mirex	18.4	5 - 120	
4,4'-Methoxychlor	ND	1540			IS 13C12-Endrin Aldehyde	8.50	15 - 148	H
Mirex	ND	342			IS 13C12-Endrin Ketone	11.8	15 - 148	H
Endrin Aldehyde	ND	3170						
Endrin Ketone	ND	3180						

DL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank.
D	Dilution
E	The associated compound concentration exceeded the calibration range of the instrument.
H	Recovery and/or RPD was outside laboratory acceptance limits.
I	Chemical Interference
J	The amount detected is below the Reporting Limit/LOQ.
M	Estimated Maximum Possible Concentration. (CA Region 2 projects only)
*	See Cover Letter
Conc.	Concentration
NA	Not applicable
ND	Not Detected
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

Sample Log-in Checklist

 Vista Work Order #: 1800398 TAT Std

Samples Arrival:	Date/Time 03/02/18 1013	Initials: JH	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 03/02/18 1540	Initials: SR JAB	Location: WR-2
			Shelf/Rack: A3
Delivered By:	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
	<input type="radio"/> GSO	<input type="radio"/> DHL	<input type="radio"/> Hand Delivered
Preservation:	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
Temp °C: 2.1 (uncorrected)	Time: 1020		Thermometer ID: IR-4
Temp °C: 2.0 (corrected)	Probe used: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

	YES	NO	NA
Adequate Sample Volume Received? <u>A, B, C</u>	<input checked="" type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>		
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Shipping Documentation Present?	<input checked="" type="checkbox"/>		
Airbill <u>Trk # 7716 6969 0999</u>	<input checked="" type="checkbox"/>		
Sample Container Intact?	<input checked="" type="checkbox"/>		
Sample Custody Seals Intact?			<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>		
COC Anomaly/Sample Acceptance Form completed?		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			<input checked="" type="checkbox"/>
Preservation Documented:	<input type="checkbox"/> Na ₂ S ₂ O ₃	<input type="checkbox"/> Trizma	<input checked="" type="checkbox"/> None
	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
Shipping Container	<input type="checkbox"/> Vista	<input checked="" type="checkbox"/> Client	<input type="checkbox"/> Retain
	<input checked="" type="checkbox"/> Return	<input type="checkbox"/> Dispose	

Comments:



APPENDIX C

Upland Capping System Inspection Form

Former United Heckathorn Superfund Site Upland Capping System Inspection Form
Levin Richmond Terminal, 402 Wright Avenue, Richmond, California

I. General Information

Site: Former United Heckathorn Superfund Site, **Inspector:** Bryan Starks and Scott Bourne, PE
Levin Richmond Terminal **Organization:** CDIM
Address: 402 Wright Avenue, Richmond, CA **Date and time of inspection:** 6/15/2018 10:00am

II. Upland Area Concrete Cap, Gravel Cover, and Drainage System Observations

Note significant cracks, holes, penetrations, damage, settlement, or any exposure of underlying soil in any component of the capping system.

North Main Terminal (SW-3)

Yes No N/A Comments

Are concrete cap surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Are gravel cover surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Is storm water drainage infrastructure (interceptors, drain inlets) in adequate condition to prevent exposure of underlying soil to runoff?

☒ ☐ ☐

Is accumulated sediment observed in the interceptors or drain inlets? If yes, note location and photograph.

☐ ☐ ☒

Interceptors not accessed during this inspection. Drain inlets have inlet protection.

Are corrective actions required?

☐ ☒ ☐

Attach a photograph of areas requiring corrective action.

☐ ☐ ☒

Describe any recent repairs/maintenance:

All interceptors in the Upland area were cleaned prior to the 2017-2018 wet season. This is performed annually during dry weather and as-needed throughout the storm season.

Drain inlets equipped with drain inlet filters, which are observed during regular BMP inspections. Drain inlets are replaced as needed throughout the storm season and at least once per year prior to the start of the storm season.

Minor surficial cracks in the alleyway along the west border of the site have been repaired.

Describe conditions and locations of the capping system which require attention:

Small cracks noted in the bulk product storage area. No soil was exposed in the area, but the area should continue to be monitored.

Describe corrective actions required and their date(s) of implementation:

None.

Signature:



Date: 6/15/2018

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Former United Heckathorn Superfund Site Upland Capping System Inspection Form
Levin Richmond Terminal, 402 Wright Avenue, Richmond, California

North Main Terminal/United Heckathorn (SW-4)

	Yes	No	N/A	Comments
Are concrete cap surfaces in adequate condition to promote effectiveness of the cap?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are gravel cover surfaces in adequate condition to promote effectiveness of the cap?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is storm water drainage infrastructure (interceptors, drain inlets) in adequate condition to prevent exposure of underlying soil to runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is accumulated sediment observed in the interceptors or drain inlets? If yes, note location and photograph.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Interceptors not accessed during this inspection. Drain inlets have inlet protection.</i>
Are corrective actions required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Attach a photograph of areas requiring corrective action.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Describe any recent repairs/maintenance:				
<i>Repair performed for minor surficial cracking in the vicinity of SW-4 and in the alleyway along west border of the site.</i>				
Describe conditions and locations of the capping system which require attention:				
<i>Minor surficial cracking was noted in the bulk product storage area. Continue to monitor.</i>				
Describe corrective actions required and their date(s) of implementation:				
<i>None.</i>				

Signature:



Date: 6/15/2018

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Former United Heckathorn Superfund Site Upland Capping System Inspection Form

Levin Richmond Terminal, 402 Wright Avenue, Richmond, California

North Main Terminal/United Heckathorn (SW-5)

Yes No N/A Comments

Are concrete cap surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Are gravel cover surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Is storm water drainage infrastructure (interceptors, drain inlets) in adequate condition to prevent exposure of underlying soil to runoff?

☒ ☐ ☐

Is accumulated sediment observed in the interceptors or drain inlets? If yes, note location and photograph.

☐ ☐ ☒

Interceptors not accessed during this inspection. Drain inlets have inlet protection.

Are corrective actions required?

☐ ☒ ☐

Attach a photograph of areas requiring corrective action.

☐ ☐ ☒

Describe any recent repairs/maintenance:

Repair performed for minor surficial cracking and cracking near railroad crossing.

Describe conditions and locations of the capping system which require attention:

Minor pavement deterioration noted in the southern portion of the eastern swale at the railroad crossing. Railroad ties may require replacement. No change noted from previous years, but the area should continue to be monitored.

Gravel cover should continue to be monitored, and additional gravel placed as needed.

Describe corrective actions required and their date(s) of implementation:

None.

Signature:



Date: 6/15/2018

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Former United Heckathorn Superfund Site Upland Capping System Inspection Form
Levin Richmond Terminal, 402 Wright Avenue, Richmond, California

North Main Terminal/United Heckathorn (SW-6)

	Yes	No	N/A	Comments
Are concrete cap surfaces in adequate condition to promote effectiveness of the cap?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are gravel cover surfaces in adequate condition to promote effectiveness of the cap?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is storm water drainage infrastructure (interceptors, drain inlets) in adequate condition to prevent exposure of underlying soil to runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is accumulated sediment observed in the interceptors or drain inlets? If yes, note location and photograph.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Interceptors not accessed during this inspection. Drain inlets have inlet protection.</i>
Are corrective actions required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Attach a photograph of areas requiring corrective action.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Describe any recent repairs/maintenance:				
<i>None.</i>				
Describe conditions and locations of the capping system which require attention:				
<i>Minor surficial cracks and seams were noted north of interceptor #5 and treatment system TS-2. Gravel cover should continue to be monitored, and additional gravel placed as needed.</i>				
Describe corrective actions required and their date(s) of implementation:				
<i>None.</i>				

Signature:



Date: 6/15/2018

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Former United Heckathorn Superfund Site Upland Capping System Inspection Form

Levin Richmond Terminal, 402 Wright Avenue, Richmond, California

North Main Terminal/United Heckathorn (SW-7)

Yes No N/A Comments

Are concrete cap surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Are gravel cover surfaces in adequate condition to promote effectiveness of the cap?

☒ ☐ ☐

Is storm water drainage infrastructure (interceptors, drain inlets) in adequate condition to prevent exposure of underlying soil to runoff?

☒ ☐ ☐

Is accumulated sediment observed in the interceptors or drain inlets? If yes, note location and photograph.

☐ ☐ ☒

Interceptors not accessed during this inspection. Drain inlets have inlet protection.

Are corrective actions required?

☐ ☒ ☐

Attach a photograph of areas requiring corrective action.

☐ ☐ ☒

Describe any recent repairs/maintenance:

None.

Describe conditions and locations of the capping system which require attention:

Minor surficial cracks and seams observed throughout SW-7. Gravel cover should continue to be monitored, and additional gravel placed as needed.

Describe corrective actions required and their date(s) of implementation:

None.

Signature:



Date: 6/15/2018

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